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The Hudson River Railroad.

A controversy has taken place between Mr. Poor, the Editor of the "American Railroad Journal," and a person signing himself "Countryman," respecting the payability of the Hudson River Railroad. Mr. Poor speaks against its payability, the Countryman for it. The greatest expenses of this road are set down for horses, &c., in New York city, for drawing the cars from 31st street to the centre of the city. We thought that condensing locomotives (the "Dummies") were to be used for this purpose. Why are they not? Are they more expensive than horses? It is our opinion that we cannot form a very sound opinion about the payability of this road for a year or two to come. It pays better than ever we expected it would; but it will require time to decide fairly on the subject.

The Compound Rail.

J. F. Winslow, Esq., of Troy, N. Y., has gone to Europe to introduce his compound rail on the English and other European railroads. This rail has received very high commendations from those railroads where it has been laid down and received a trial. Erastus Corning, Esq., of Albany, N. Y., President of the Utica and Schenectady Railroad, a gentleman of great probity, says that ten years' experience of ten continuous miles on the railroad, convinces him that "it is one of the greatest improvements yet made in railroad construction." The Superintendent (C. Vibbard, Esq.) of the same road, expresses the same opinions.

Hobbs before the London Society of Arts.

Mr. Hobbs, in a lecture before the Society of Arts, in London, gave the following statement of the manner in which he picked the Bramah lock:—

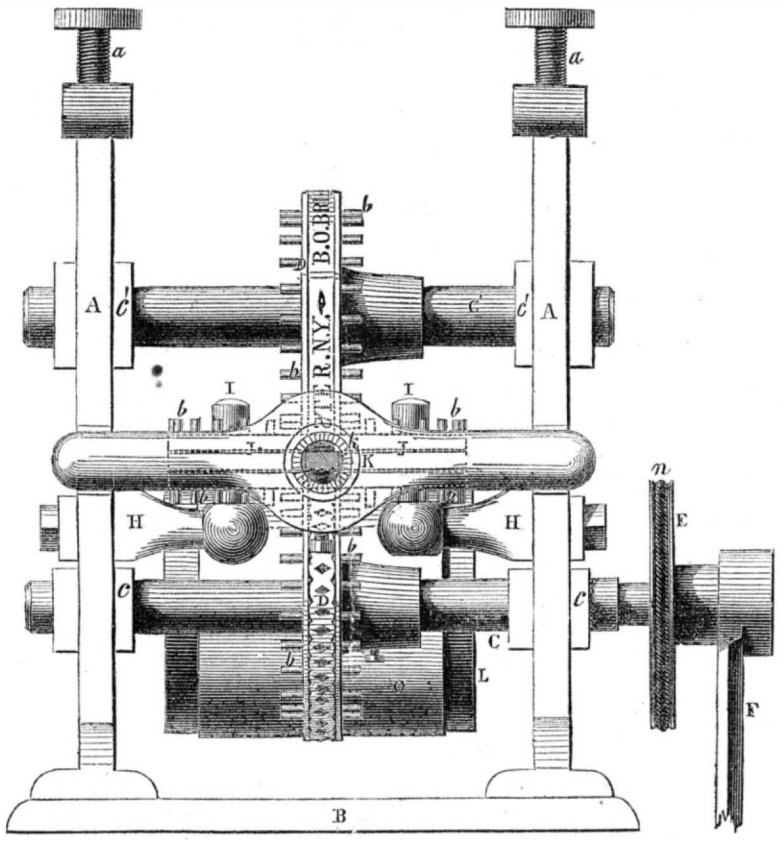
"He said that his first step had been to take an impression of the hole in wax. He had originally supposed that each slide had its spring, but he found himself mistaken in that surmise. Having contrived the necessary implements, he pressed down the disc, which left him at liberty to work on the slides; introduced a lever to the key-hole, and applied pressure to the cylinder; felt the slides successively, pressed them in the false notches, and succeeded in loosening the cylinder, and the lock was picked. He had never seen the inside of a Bramah lock before his experiments—had never tried to pick one; and he entertains no doubt that, with his present experience, he could repeat the process in an hour's time.

In conclusion Mr. Hobbs said he had never made a lock, and never practiced picking a great deal: and he astonished his English auditors by saying that he knew more expert lock-pickers than himself.

Clinton State Prison Iron Ore.

The Northern Gazette, Keesville, N. Y., contains a stinging article in reference to the message of Gov. Hunt, recommending more prisoners to be sent there. The article states that there is no ore on the State property (so does Gov. Hunt's Message) and wonders how iron can be made without ore.

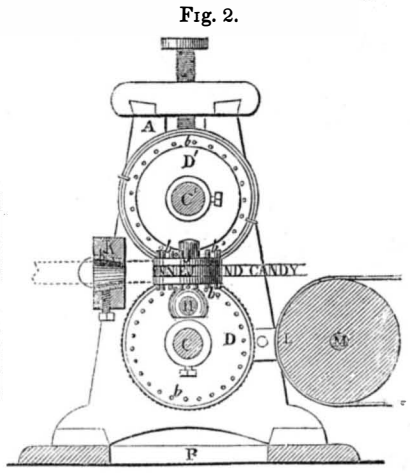
PATENT MACHINERY FOR ROLLING CANDY.---Fig. 1.



The accompanying engravings represent the improvements in machinery for rolling candy, invented by Mr. Bartholomew O'Brien, of the city of Rochester, N. Y., the patent for which was granted on the 13th of last month (Jan.) Figure 1 is a front elevation; figure 2 is a vertical section, taken at right angles to the axis of the rollers. The same letters refer to like parts.

A A are two standards, and B is a bedplate, forming the frame of the machine. C is a shaft or axle hung horizontally in boxes, *c c*, on the standards; this shaft carries a roller, D; a pulley, E, and a winch handle, F, by which it is turned. C′ is a shaft hung parallel to C in the boxes, *c′ c′*, which are adjustable at various heights on the standards by the screws, *a a*; it carries a roller, D′, of similar

Fig. 2.



size, and in other respects like D. H H are a pair of arms or brackets secured within the standards each carrying a stud, I; upon each of these studs is hung a roller, J, whose diameter is such as will allow of its periphery nearly touching the sides of the rollers, D D′. The two rollers, J J, and the ones, D D′, have all a series of teeth, *b b*, on each side at a distance within their peripheries, by which they are geared together, so that when one receives motion it gives motion to all the others, in such a direction that the sides of their peripheries which are nearest together, move towards the same direction horizontally. The roller, D, is ornamented on its periphery, while the periphery of D′ has the words B. O'Brien, Rochester, N. Y., cut upon each half of it, being divided into two parts by cutters, *d d*, secured to it diametrically opposite each other. The rollers, J J, have each the words "Jenny Lind Candy" cut upon their peripheries. K is a bar which is secured across the front of the standards; it has a base on the middle, which is bored out to receive a conical collar, *k*, which is secured by a set screw; this collar forms the gauge for reducing the stick or piece of candy to be operated on to the required size before it reaches the rollers; the machine must be provided with several of these collars to suit various sized sticks. L is a drum secured upon a shaft, M, which is hung in bearings in brackets attached to the standards—it is driven by a band, *n*, which runs from the pulley, E, to a pulley, N, on its shaft; upon this drum, and upon another hung on a confectioner's table, at a convenient distance from the machine, the endless apron, O, runs.

The operation of the machine is as follows: Rotary motion being given to the shaft, C, by means of the handle, F, it will give motion to the other rollers in the required direction. The candy being introduced through the gauge, *k*, to the rollers, is drawn through or between them, and reduced to the proper size and shape, receiving the impression of the maker's name on the top face; the ornamental devices on the lower roller, D, on the under face, and the words "Jenny Lind Candy" on each edge, and being cut off or indented, ready for breaking off into sticks of equal length by knives, on one or both of the rollers, D D′; the sticks being of equal thickness throughout, and consequently all of uniform weight, they are carried by the apron, O, to the confectioner's table and disposed of as may be thought fit. The thickness of the sticks may be altered by raising or lowering the top roller, D′. The form of the impressions produced upon each side of the stick may be varied indefinitely by differently cut or engraved rollers. By a modification of the rollers various formed candies may be produced.

This machine gives the impression on four sides to any candies that may pass between the rollers, and it makes all the candies of a certain shape and thickness, and at the same time, it cuts them off at required lengths. Its utility, beauty, and good qualities, for those engaged in this kind of manufacture—one of no small importance in our country—is obvious.

More information may be obtained by letter addressed to Mr. O'Brien.

The Montgomery Mechanics' Association.

The mechanics' of Montgomery, Ala., have formed an association and have become a corporate body by an Act of the Alabama Legislature. The objects of the association is the promotion of the mechanic arts, the sciences, and the diffusion of useful information among the members. They are to have a library, reading room, courses of lectures on various subjects pertaining to the objects in view; also a system of debate among the members, for the excelling in which, cards of merit, diplomas, &c., will be awarded. The terms of admision are $10, and 50 cents as monthly dues. We understand the citizens of Montgomery are highly pleased with this effort of the mechanics, and that the impression is general that it will prove a benefit to the community. We have received a list of the names of the officers, they are gentlemen of respectability and worth, and we are confident that the association must do good. We hope that all the intelligent men in Montgomery will give it their support, and we hope that all the mechanics in the place will join it. We have just one word of advice to give to them, it is this, "endeavor to cultivate a real good, sociable, and kindly feeling towards one another and endeavor to make the evening meetings pleasant to one another." We do not like debating clubs; this opinion is formed after much experience; they bring into play the feeling to exceed rather than excel. The reading of short papers, we have noticed, does more good; these papers should be on various subjects, and each should not be longer than to take up about 15 minutes to read.

Hurl Gate.

The whirlpool at Hurlgate, on the Long Island Sound, has ceased to be a whirlpool. The rock which caused the whirl of boiling waters has been blasted, and the debris of it has filled up the yawning gulfs around it. Monsieur Maillefert has done this by inserting a shaft in some crevice, attaching a canister of powder to it to rest on the rock, and then discharging the powder by the electric spark. The water answers for a lever to make the powder act upon the rock. The discovery of this principle of blasting is a valuable one. We do not know who claims to have discovered it, the invention, we know, is five years old at least, and was used to tear up the concrete shoal in the Thames in 1847 or '48.

Remarkable Discovery in Virginia.

A letter in the Richmond Times states that a few days ago, while severel men were engaged in blasting limestone near Buchanan, Bottetourt County, they discovered a cave, with an entrance some six or eight feet in height, and one hundred long, with two apartments. In the first they found some earthenware and a large stone cross; on the cross there was some carving, but it was so much defaced by the hand of time that it was scarcely discernible. A number of citizens with lanterns, consequently, entered the second apartment, where they found a skeleton seated on a huge iron chest, with its back resting against the wall. On opening this chest they found it to contain gold coin, perfectly smooth on one side and a cross with some characters on it on the other. The gold in the chest by weight, is worth seven hundred and eighty-three dollars.

[This really looks to be something more than a fact, we do not give it any credence.

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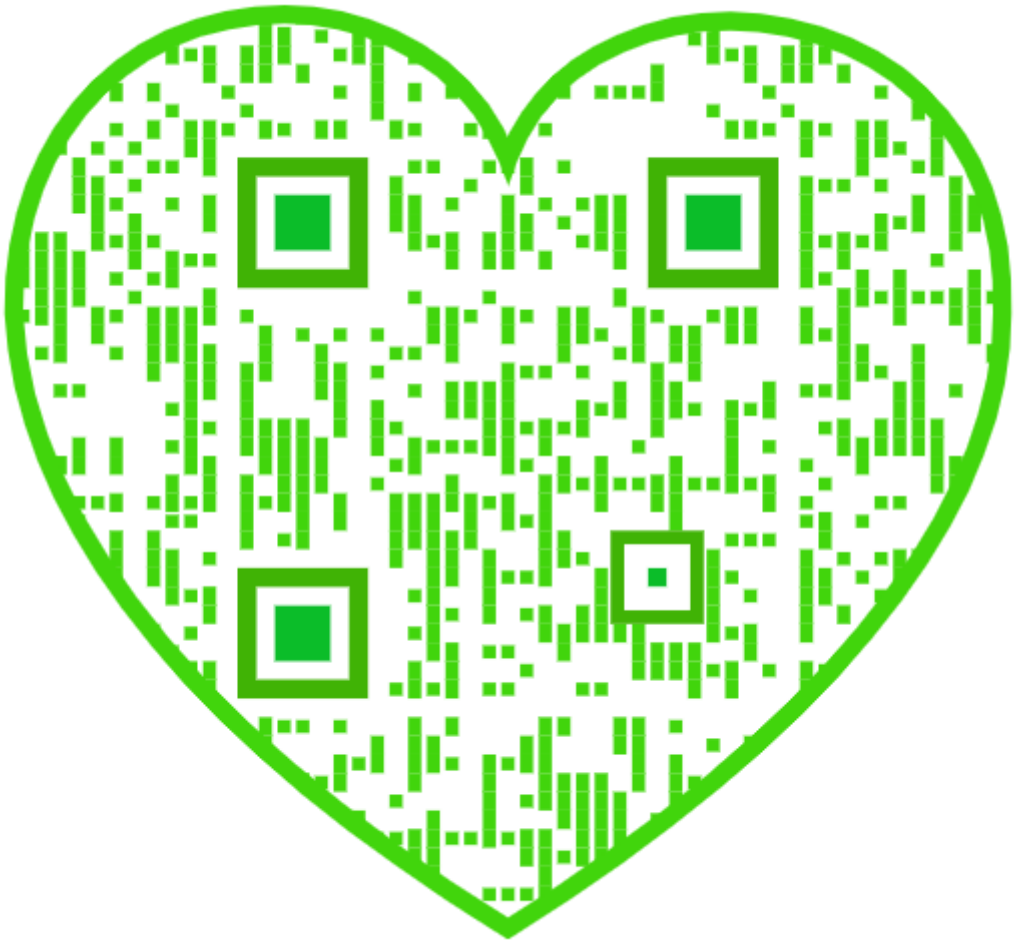

MISCELLANEOUS.

Lectures on Ships and Steamers.

John W. Griffiths, Esq., author of the excellent work on Naval Architecture, has been delivering lectures before the Maryland Institute. His subject, on Tuesday evening, last week, was "The Glory of Mechanism, as developed in Ship Building." The Baltimore papers speak in the highest terms of Mr. Griffith's lectures; the ship carpenters of that city are anxious to have them published. He had with him a splendid model of a side wheel steamer, made by himself, which has been exhibited at the World's Fair, where it attracted much attention. The audiences were very respectable, as are all the audiences which attend the Institute. There were a great number of ladies present, who were exceedingly pleased, for Mr. Griffiths is a practical mechanic, understands his subject well, and a man who does this can render his subject plain to all. He is possessed with a natural eloquence, and this gives zest to his scientific delineations of water-lines, wave-lines, &c. He stated that our naval architecture would have been a higher state of excellence but for several serious drawbacks, which he fully explained. Among them is the want of protection of the inventions of the Marine Architect by the patent laws of this country,—a great truth. Mr. Griffiths had quite a number of models with him to illustrate his lectures.

It would give us pleasure to know that a course of lectures were to be delivered in New York by Mr. Griffiths—a course of such lectures should be delivered for the benefit of our young ship-carpenters, every winter at least.

Address before the Maryland Institute.

We are indebted to Wm. Prescott Smith, Esq., Cor. Sec'y of the Institute, for a copy of the Hon. J. P. Kennedy's Address at the opening of the Fourth Annual Exhibition of last October. Mr. Smith has done us a great favor; the Address is adorned with a lithograph of Baltimore in 1752, containing about fifty houses, and looking like a large sheepfold. What changes have taken place since then. The lecture is a history of Baltimore. Long may it be distinguished for its people, its clippers, buildings, and its Institute for the "Promotion of the Mechanic Arts."

Trial of Locomotives at Lowell.

We are indebted to our friends for a copy of the Report of the Committee on the trial of the Locomotive Engines, which took place at Lowell in October last. It is a valuable report, yet it would have been far more valuable had it described the peculiar difference of construction, (if any, and we have been assured there was) of the engines. We quote two extracts from the Report, which are worthy of the attention of every person connected with railroads, "It is apparent, even to a casual observer, that the railroads have increased in a greater ratio than the amount of business they can do. The greatest possible saving, therefore, should be made in all the details of working and maintenance, and that the weight of the engines should be reduced, and their power increased to the greatest limit consistent with the proper durability of the machines. We trust the experiment will be followed up by those interested, until a series of observations, properly made, may enable railway managers to judge with certainty, having actual and not theoretical knowledge for their guide."

We indulge the same hope, and in the future experiments which may be made, we hope that the strictest possible attention will be given to the boilers of the engines.

The Young Astronomer.

Mr. Langdon, the young astronomer, finished a course of lectures last week on Astronomy, before the Maryland Mechanics' Institute. These were the first lectures he ever delivered —his *debut*, and have done him credit. His lectures were well received..

An American club has been organized in Paris. Its object is to furnish an agreeable place of re-union for Americans.

About $30,000 has been subscribed to build a fire-proof building for the Historical Society of New York.

Recent Foreign Inventions.

Dyeing.—Mr. Brazil, of Manchester, Eng., recently secured a patent for improvements in dyeing.

The first part of this invention consists in using soap or saponaceous matter in water, in order to facilitate the extraction of the coloring principles from madder, garancine, or other dye stuffs in the act or process of dyeing. The proportion which the patentee prefers to employ, are half a pound of soap (palm oil soap by preference) to every 10lbs. of madder, with the usual proportions of ground chalk and water. It is recommended to enter the goods to be dyed at a temperature of about 70° to 80° Fah., which should be gradually raised to 180°, when the goods are withdrawn. Or, instead of using the proportions of soap above mentioned, almost half or two-thirds of the soap liquors used for the first soaping of the first fabrics may be employed, and in both cases the madder should be added before entering the fabrics in the dye-beck.

The second part of this invention consists in using a solution of borax or borax combined with soap, for the purpose of more readily extracting the coloring principles from madder and other dye stuffs while in the act of dyeing. When borax is used alone, the proportion is ½ lb. to 12 lbs. of madder, and when soap and borax are employed together a quarter of a pound of each are added to 10 lbs. of madder, the usual quantity of ground chalk being introduced in either case.

The third improvement consists in saturating piece goods previous to applying a mordant, with a solution of soap in water, which must be dried in the goods before the mordant is applied. For this purpose the patentee makes a solution of 1 lb. of soap in 12 gallons of water, which will be a proper strength when the goods are entered in a dry state; but when the goods are entered direct from the bleaching vat in a wet state, a liquor of greater strength will be found necessary. The fabrics having been submitted to this operation, are dried and then dyed in the usual manner. Another liquor adapted for the same purpose is composed by adding to the soap water from the soap vat as much resin as it will readily dissolve; this liquor is used in the same way as the former one. A third liquor consists of water to which has been added for every six gallons one pound of borax with as much resin as it will conveniently dissolve.

The fourth part of the invention consists in using a solution of soap in water, or of borax alone, or combined with soap, in order to facilitate the extraction of the coloring principles from dye-woods and dye-stuffs, the quantity of the above ingredients employed depending on the nature of the dye liquor required to be produced, and the dye-wood which may be under operation.

Silver.—Mr. Alex. Parkes, of Birmingham Eng., recently obtained a patent for the following method of separating silver from other metals:—

For ore containing 14 oz. of silver to the ton, one part of zinc to every 100 parts of ore will be found a good proportion. This proportion must be varied with the quantity of sliver present: thus there will be required

	Silver.	Zinc.
For a ton of lead ore containing	14 oz.	22·4 lbs.
Ditto	21 oz.	33·6 lbs.
Ditto	28 oz.	44·8 lbs.

The lead having been melted, and its temperature raised to the melting point of zinc, the zinc is introduced, and after being well mixed time is given to allow the zinc and silver to rise to the surface, and when the metal begins to set, the zinc is skimmed off, and placed aside for the purpose of having the silver extracted from it. The lead which has been thus desilverized will be found to contain a small proportion of the zinc, and as this would act prejudicially on the metal, it may be removed by running the lead into a reverberatory furnace, and maintaining a low heat until the zine is oxidized and rises to the surface; the lead is then tapped off, and the oxide of zinc removed from the furnace by any suitable means. This operation will occupy about two hours and a quarter, supposing the quantity of lead to be about three tons and the surface about 25 to 30 square feet.

In order to separate the silver from the zinc and lead with which it is combined, it will be necessary to concentrate the alloy, and this is done by placing it in an iron pot perforated at the bottom, and applying a low heat so as to melt out a portion of the lead; the lead which is thus melted out, may be melted again with a fresh quantity of ore to obtain any portion of silver which it may still contain. The concentrated alloy may then be submitted to a low heat, so as to oxidize the zinc and admit of its being dissolved out by muriatic or sulphuric acids, leaving the silver to be subsequently treated in the ordinary manner. Or it may be distilled in a retort, such as is used in the manufacture of oxide of zinc, so as to obtain the zinc in the metallic state, and admit of the silver being separated by cupellation from the small quantity of lead and impurities remaining combined with it. When performing this distilling operation, it will be found advisable to add to the zinc and silver alloy a small quantity of carbon to reduce any oxide which may be present.

The above are selected from our valued cotemporary the London Mechanics' Magazine.

Anthracite, as a Fuel for Locomotives.

This coal has never been properly managed. The error has always been in making the fire-box too wide. It should be made nearer of the proportions of the cylinder of a common stove, with depth of coal to retain the heat and keep it under full head when the coal is ignited, with dampers to regulate the heat. Start the fire with sufficient wood to get it quick under way.

When a body of coal with depth to it is once heated, you have an agent, with power at your command, as completely and controllable as the lightning in the hands of the telegraph agent.

The depth of fire-box is required, and the want of it the whole cause of much of the failure in the use of anthracite heretofore, I am aware. A Constant Reader.

West-Chester, Feb. 5, 1852.

[Philadelphia Ledger.

[The above deserves attention, because it contains a statement generally admitted to be wrong. The cylinders of common stoves, it is generally believed, are more economical in respect to fuel and more easily managed when of great diameter. The reducing of the width of the fire-box of a locomotive, if this is true, would rather be detrimental than beneficial. And so far as our experience is worth anything it would be so. There is an error, however, in making fire-box cylinders, or furnaces for burning anthracite coal, too deep, of this we have had personal experience, and on one occasion in adapting a boiler furnace to burn anthracite (wood was employed before), we had to reduce the depth of the space from the furnace bars to the bottom of the boiler. two-thirds.

English Patent Law.

On the first of last month, Jan., an act came into operation to simplify the passing Great Seal grants. This bill originally contained a clause exempting Letters Patent, (this is the way governments always treat inventors) but it was amended to include Letters Patent. It takes off fees to the amount of £20, ($97). This reduces the cost of an English patent, but not one for Scotland and Ireland. Oh what a set of Legislators the English Parliament is made up of.

Arabia Steamship.

By the last news from Europe, it is stated that the splendid new steamship Arabia, which has been built for the Cunard Line, and which is now in Glasgow, Scotland, getting in her engines, by Robert Napier, has been sold to the West India Mail Company, to supply the place of the ill-fated Amazon. It is also reported that the same Company wish to purchase the Asia. The Cunard Co. will still have five ships left, and the Persia, now building, will be ready in a few months.

Steam Boiler Explosions.

This subject has been brought before Congress, and a plan of Mr. Guthrie, Engineer of the Chicago Waterworks, has been presented, and spoken of very highly. We hope that Mr. Guthrie's plan will receive the attention of Congress, and end in something more than a mere report on the subject.

On the Manufacture of Eau de Cologne.

This well-known perfume is a solution of different volatile oils in pure strong spirit. The principal condition for the preparation of a fine water, is the employment of a spirit quite devoid of fusel oil (oil of grain), and of all foreign odor.

In respect to the proportion and kinds of oils employed, we have numerous formulæ. It is of importance that these oils, which are usually purchased of the druggists in the south of France, should be of the finest quality, and that no oil should be used in sufficient quantity to allow of its peculiar odor being recognizable in the mixture. The oils are to be dissolved in spirit, and the mixture allowed to stand for some weeks (or still better, for some months), to improve its odor. Distillation does not affect this: on the contrary, a fresh distilled water requires a much longer time. Distillation is indeed objectionable, for, on account of the greater volatility of the spirit, the oils, in part, remain behind in the still. Distillation can improve the odor only when the less volatile oil has been used in too large a quantity, and we wish to obtain a better proportion. Before all things, we should employ a pure, old, strong spirit, and not too much of, nor a too strong smelling oil.

The different sorts of volatile oil which are obtained from varieties of citrons, oranges and lemons, in different states of maturity, are the most important, and therefore it is highly necessary to ascertain their purity and goodness.

Foster gives the following formula for the preparation of a fine eau de Cologne: take of rectified spirits, sp. grav. 0·855, 6 wine quarts; of the essence of oranges, bergamot, citron, limetta, and petits grains, each one ounce; of the essence of cedro, cedrat, Portugal and neroli, each half-an ounce; oil of rosemary, two drachms, and oil of thyme, one drachm.

Otto gives the following formula for a good eau de Cologne; rectified spirits, sp. grav. 0·846, 200 wine quarts; oil of citron, 4 lbs.: oil of bergamot, 2 lbs.; oil of neroli, 10 oz.; oil of lavender, 8 oz.; oil of rosemary, 4 oz.; and spirit of ammonia ½ oz.—mix.

The Locusts.

Dr. Gideon B. Smith, of Baltimore, the eminent entomologist states that the seventeen year locusts will appear this year in Connecticut, east of the river, and in portions of Massachusetts; they will appear in great numbers about Fall River. Where forest and other hard wood trees grew seventeen years ago, the larvæ of these insects may now be found in all the places where they will appear in summer, by digging two or three feet in the ground. They will be found singly in their cells in a half torpid state. He says—'About the first of May they may be discovered by merely shaving off the top soil with a spade, when their chambers will be found completed near the surface of the earth. It would serve the cause of science if some one in those districts would take the trouble to make these researches, and also to watch their first appearance above ground, which happens several days before any notice is attracted to them.

I expect they will first begin to emerge about the first of June."

He believes that some of them may appear in Rhode Island adjacent to Fall River. See an article from Dr. Smith, on this subject, with an engraving on page 212, Vol. 6, Sci. Am.

During the past year, the Library of Harvard University has received the addition of 1,616 volumes, and 1,539 pamphlets. Nearly half of these were donations from individuals. The purchase of Professor Jacobi's Mathematical Library, of Berlin, by Mr. George Bond, for the College, is mentioned as a very important acquisition, as this library was considered one of the most complete private collection in Europe.

A lighthouse is to be erected and completed on the Seven Foot Knoll, at the mouth of the Potapsco river, by the first of July next. It is to be furnished with the French Lenticular lighting apparatus, and is expected to be the most brilliant light on the Chesapeak. Application will be made to have a fog bell attached to it.

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Cultivation and Preparation of Cotton.

Land intended to be planted in cotton should be bedded up as early in winter as possible, to allow the freezing to pulverize the soil thoroughly and the land to settle immediately under the tap root. The plowing should be done with the best turning plows, as deeply as the nature and depth will admit, and in the most thorough manner. Especial care should be taken to leave no land unbroken between the furrows. If the soil is stiff and deep, two-horse plowing, to a depth commensurate with that of the soil and ease to the team, is infinitely preferable; this secures a more thorough drainage and greater and freer penetration of the roots of the plant to the moist subsoil in either wet or dry summers. The rows should be laid off with a scooter plow, at distances suitable to the strength of the plow, say five and a half feet to six feet on bottom land, and four to five feet on upland, or even less than four if the soil is thin. Stubble land to go in cotton (which should always follow corn, small grain, or fallow land,) should be broken or bedded up very early in the winter, to allow time for grass seeds and stalks to rot, and the frosts to integrate furrow slices and clods. A good plan on stubble, corn, or fallow land to go in cotton, is to lay off the rows with a scooter plow; enlarge the furrow with a shovel plow; drag all the grass weeds or stalks into the furrows, and then list two furrows of a two-horse plow upon the soil of vegetable matter, leaving the balks to be well plowed out with a turning plow about a fortnight before planting. This puts all trash out of the way in chopping out, and provides an absorbent, for moisture, and a bulk of manure beneath each bed. If a heavy rain or baking wind should run the land together and form a crust upon the bed, a one-horse harrow run over the bed will pulverize the crust and put the land in good tilth. Cotton should be planted from the 15th of March to the 10th of April, as the season or sort of land warrants. Seed should be well saved, and if kept over one year for planting, will ensure a better stand and more vigorous plants, as the imperfect seed perish by keeping over. They should be sown at the rate of one and a half to two bushels to the acre, in direct proportion to the width of the rows (narrow rows requiring more seed) and the stiffness of the soil; the latter case demanding also more seed. Seed on light land may be covered with a board, with a notch in it, attached to a scooter stock. But stiff lands should always be covered with a harrow or two small scooter furrows. The ridge, in the latter case, over the seed, to be scraped off with a board, with a notch in it, as soon as the seed cracks the ground in germinating. The board is useful in scraping off the first coat of grass; the first plowing of cotton should begin when the third leaf appears on the young plant, and be done with a sweep, Mississippi scraper, or some similar implement, as no roots are lacerated by this process and the plant suffers no check in growth; chopping should begin in from four to seven days after running round, and be done with hoes of as nearly equal size as possible, the stand being more uniform in consequence. From one to four stalks should be made in a stand at this time, and the distances between stands governed by the strength of the soil; though thick planting in moderation on all soils—say six feet by eighteen inches on bottom land, and four feet by twelve inches on good upland—will be found the most productive in an average of years. The second plowing should be done with a sweep next to the bottom, with a mould board next to the plant, to dirt the young cotton, and the balance of the row plowed out with a turning plow to keep up the bed. The stand should then be thinned to one stalk in a place on strong land, but from two to four may be left on being thinned to supply limbs by stalks; all subsequent plowing in ordinary seasons should be done with sweeps, with the mould board to keep up the bed. But in laying by, one or two furrows should be run with a turning plow to drain off the surplus water by heavy rains: bottoms should be plowed every twenty days, and hoed immediately to keep it constantly growing, the earth light and pervious to sun, air, and dews. In very wet seasons, recourse may be had to turning plows with benefit, provided they do not penetrate deeply near the plant; for this checks the plant if it turns off dry by breaking the roots, and causes it to shed, and forces it too much in growth if rain follows speedily. It is doubtful whether topping cotton is beneficial in the average of years, sometimes doing well and at others failing in nearly similar circumstances.

Picking should begin as soon as a hand can gather fifty pounds in a day, as the oil is soon evaporated by the sun, wind, and rain, and a large per cent. of weight is thereby lost. In full crop years, cotton should be picked as free from leaf as is consistent with good work. But in short crop seasons, too much pains should not be taken with the leaf, as the difference in number of pounds will greatly overbalance that of loss of price per pound, and discrimination does not prevail in the market to any extent comparable with that of the large crop years. Planting seed should be saved from the second picking in general, and from cotton picked from mid-day till night, or that seemed well for the purpose. All other cotton should never be sunned, unless wet by rain; but packed in close bulk from four to eight weeks, to allow it to heat, care being taken not to allow it to heat too much, and the oil from the seed to diffuse through the lint, imparting to it the cream tinge so admired by buyers and manufacturers. Ginning should be carefully done at moderate speed. Packing should never be done in very dry or windy weather, but always in damp and moderate rainy days, as it packs better, and weighs heavier, from the absorption from the air and retention of the oil latent in the lint. The bagging should always be put on loosely, to allow for the swelling of the bale, and completely envelop the cotton. The ropes should be put on tightly, to prevent undue expansion of the bale, and be at least six in number.

[The above is from a correspondent of "The Soil of the South" newspaper. We publish it because it is a subject of great interest to a a large number of our subscribers who may not have had an opportunity of seeing it in the paper referred to.

The Fire Annihilator Again.

In our last number we had only time to make a small note of the Annihilator Experiment, which took place at Melrose on the 9th inst. The Journal of Commerce says,—

"The building was two stories high, built of dry pine, with a pine floor on each story; but the door and windows were all on one side, so that there could be no draught through the house. Mr. Phillips made a little speech, in which he disclaimed the expectation that his invention would supersede the use of water, yet he thought that the late fire in Liberty street would have been subdued by a few of his machines, after it had reached such a height that water was of no avail except to protect the buildings yet unkindled."

There were three experiments made, the Journal of Commerce thus describes the second,—

"This fire took a speedy hold of the charred pieces of board, and made more smoke than the first, but not so much heat, as there were fewer shavings. Two Annihilators were applied to it, and their vapor, together with its own smoke, seemed for a while to have completely smothered it. The first man who entered bore a mop and pail of water, and we followed, half suffocated. The brands used in the first experiment had fallen into a heap, which was still briskly burning, with flames about two feet high, while the longer pieces, placed last, remained leaning against each other, much charred, and in a few spots on fire. The mop-man found plenty to do, and a second person coming in, took one of the machines and upset it upon the top of the burning heap. The smoke was so dense that we could not be certain whether all the water run out of the machine, or whether a pail was used also. Wherever it came from, there was water enough on the floor after the fire was extinguished, to have extinguished it. At this stage of the proceedings, a gentleman interested in the invention, proposed to the company to vote that in their opinion half of the fires that occur in New York, could be extinguished by the Annihilator at the time of their discovery. Nearly all voted aye, and none said no. It was evident that the experiments, so far, had produced a favorable impression; yet not all were satisfied. After the experiments were concluded, two of the Annihilators were set on, out of doors, for the amusement of the company. We placed a hand in the vapor, and drew it back, wet and dirty. Again we inserted it, shielded by a woolen glove, and the exposed part of the glove has since changed its color. We noticed also that when the machines were inclined from the perpendicular, a good deal of muddy water was thrown out with the vapor.

These things show that property may be damaged by the Annihilators as well as by Croton water; and we suppose that the vapor would be very injurious to the stock of a cutlery store, and probably to many descriptions of dry goods."

The New York Times says:—

"A pile of pieces of boards stood in the centre of the room, and around these was strewed a quantity of shavings. The latter were set on fire, and then the door was closed. Through the window we could see the shavings burning somewhat rapidly, and in about fifteen seconds one of the machines (the largest on the ground, a No. 3) was fired and taken into the room, the door being closed after the man that took it in. In a short time it was announced that the fire was extinguished, and an examination showed that but little damage had been done to the solid wood. Those interested pronounced the experiment satisfactory; but there were some who did not so consider it. When the Annihilator was applied, the flames had almost died out for want of air,"

This is an account of the first experiment; it sums up as follows:—

"A close examination of the experiments made yesterday, satisfies us that, for practical purposes, the Annihilator is not of any importance. If you cage a fire in a close room, and apply them, they will undoubtedly do the work; but unless you can so confine the flames, the Annihilator is powerless. Let the fire get fairly through the room, and have free vent, and it could not be controlled by any apparatus exhibited on Monday."

The Tribune thus describes the third experiment:—

"It was then proposed to make a more extensive conflagration, which was done by piling the dry stuff against the walls of the building, leaving doors and windows open, and kindling it. It blazed instantly, and after about two minutes, two of the Annihilators, No. 4, we believe, were introduced, and the flames subdued. Before the party left the spot two of the machines were put in operation in the open air. The gas rushes out with a roar like steam and forms a thick white vapor. No further trial took place. There was much satisfaction and a good deal of doubt expressed among the gentlemen present. One thing however was demonstrated, we believe, to general satisfaction, namely, that a prompt application of the Annihilator to a kindling fire would immediately subdue it. For our own part, we doubted if the first fire made in the building could not have been extinguished by a half dozen pails of water, had they been at hand as was the machine. But even in that case the machine is more convenient. We do not believe that the second fire would have been arrested in the same time, except by a very considerable stream of water, and to obtain that, a quarter of an hour or so is always necessary. But the difficulty at the experiment, on Monday, was the very brief start allowed the fire. If a flame were discovered within the first minute or two, and an Annihilator were at hand, ready for use, the fire might be subdued. But it was impossible to conclude from the experiment, that a fire vigorously under way, and nursed by all kinds of drafts, would be extinguished by the Annihilator, on account of the escape of the gas and diffusion in the air. We do not say it could not be so extinguished, but it was not proved on Monday."

Other papers speak nearly in the same strain. We have to say that we were there also, and the remarks made by the Journal of Commerce, Times, and Tribune, express our ideas so clearly that we have but little more to add. We have no prejudice against the Annihilator; why should we? We have no interest in it to blind us to its defects, and none to speak against its merits. After witnessing the experiment spoken of, we must say, without qualification, as we have said before, that it is an *inefficient* invention for the extinguishment of fires. We certainly wish it could do what it was pretended it would do. It will be observed that the vote taken was coming down quite a number of notches from the claims first set up for the Annihilator. The circulars of the Company stated,—"An end must be put at once to every serious conflagration in America." This statement has not been fulfilled in a solitary instance.

During the experiments, great care was taken to prevent the boards of the house burning on the outside. Some of the boards caught fire which was put out with wet swabs. Three or four men were stationed on the outside to keep the flames from getting vent, to keep out the oxygen from supporting the combustion. Holes were burned on the back part of the building, by the second experiment, and before the third was made new pieces of boards were carefully fitted over the said holes. The experiments were not such as could justify any acute minded reflecting man, to come to any other conclusion than this, "they were made under favorable conditions to the success of the Annihilator; and under no conditions like those by which ninety-nine out of every hundred conflagrations take place and are consummated in this city, and elsewhere."

In all probability the Fire Annihilator Co will organize upon a new basis, and the experiments at Melrose, all the conditions of which were planned by the patentee, will be used under the halo of respectable names to advance the character of the annihilator. Let us say here, that where water is thrown upon fire, the gases that are generated are the very same as those used in the annihilator. We defy any one to contradict this. Ninety-nine fires out of every hundred originate from carelessness or incendiarism, and are too far advanced when discovered to be vanquished by any other force than our fire brigades.

Dangers of Gas.

A whole family, by the name of Sauerbier, died at St. Louis, recently, from inhaling coal gas while asleep. Some persons finding the house closed late in the day, forced the doors, and on entering found a journeyman in the employ of Sauerbier, in bed, pale, panting, and unconscious, as if on the point of death. The party immediately opened every door and window to admit as much air as possible, and then proceeded to the room over-head. There the smell of gas was even more overpowering than below. Having opened the windows, they witnessed a sight sufficient to curdle the blood. A bed in one corner contained four persons—Sauerbier, his wife, and two children. The woman was quite dead, with her limbs cramped and her face swollen, and holding to her breast a child aged about eighteen months, also dead. The husband lay alongside, with a boy aged four years, both unconscious and apparently breathing their last. Measures were taken for the relief of those of the sufferers who were yet living, but with little prospect of success. It is a very singular thing that people will go to bed, or stay in a close room, in which gas from a charcoal or other fire is being emitted. Everybody knows the danger attendant on the inhaling of carbonic acid gas, and yet there is not a week passes over our heads but we hear of deaths occasioned by this gas. When will people learn to be as careful of the air they breathe as the water they drink? In our cities, where gas is used for artificial light, we are afraid that many diseases are caused by inhaling gas that scapes from leaky pipes. The above acciden was caused by a leak in the pipes. Let people beware of these things.

Disastrous Flood.

A disastrous flood occurred at Burlington, Vt., on the 11th inst., at North Village, in consequence of the breaking away of the great dam above the railroad. The flood was very sudden; the people had only time to run out of their houses. Richardson & Jones large batting factory was totally destroyed. Every bridge in the vicinity was carried away. A machine of Messrs. Richardson and Co., was illustrated in volume 6, Sci. Am.

The propeller steamship Glasgow, from Glasgow to New York, put back to Clyde on her last voyage, in distress.

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NEW INVENTIONS.

Balance Gate.

Mr. C. Van Hoesen, of Leeds, Green Co., N. Y., has taken measures to secure a patent for an improved balance gate, which may be opened and closed by the driver of a vehicle, without the necessity of leaving his seat. The gate is hung on pivots, the said pivots passing through its two sides and through the gate posts. One of the side pieces of the gate extends upwards some distance above the pivot, and has a weight or counterpoise upon it that causes the gate to be balanced upon the pivots. The gate is provided with two latches, which are operated upon by the ropes or cords passing over a semi or half pulley attached to the longest of the two side pieces, and at a point about where the pivot is placed; the cords pass over small pulleys fixed in horizontal arms attached to upright posts—an arm being on each side of the gate. The horizontal arms are sufficiently elevated to allow the driver to catch the end of the rope as the vehicle approaches the gate, and on pulling the rope, the latches of the gate being balanced by the weight or counterpoise before mentioned, the emi-pulley spoken of will turn, and the gate will arise, and one of the latches will fasten itself (when the gate is in a horizontal position) in a catch attached to a horizontal arm in one of the gate posts. When the vehicle has passed through the gate, the driver pulls the rope which is on the opposite side to that which he entered, when the latch will be relieved from the catch in the horizontal arm mentioned, and the gate then descends to the original position—is closed.

Improved Friction Clutch.

Mr. Gerard Sickles, of Brooklyn, N. Y., has taken measures to secure a patent for an improvement on friction clutches, which consists in a peculiar manner of operating two segments, by which operation they are made to bind in a V shaped collar, or be freed from it, as desired. The binding of the segments in the collar transmits motion to certain parts of machinery to which the clutch may be applied, or stops the motion of said machinery by freeing the segments from the collar spoken of. The segments are operated by means of levers having arms attached to them, the arms being also attached to boxes in which the said segments are placed. These arms and levers are so arranged that when the said segments are pressed in the collar they will not relax their connection—as common clutches are liable to do—without the application of extraneous force. This clutch prevents jarring when it gears with the machinery—a most important improvement.

Improved Brick Machine

Mr. R. A. Vervalen, of Haverstraw, Rockland Co., N. Y., has taken measures to secure a patent for improvments in presses for making bricks. He employs a lever which acts like a cut-off in steam engines and produces a greater or less pressure of the followers upon the clay as may be desired. He employs a spring so arranged upon the machine that obstructing substances, such as stones in the clay, will be prevented from breaking the working parts or front plate of the press, which latter may be removed at pleasure.—The improvements made are of great importance to brick makers.

India Rubber Power.

On page 133, this present volume Scientific American, we published an engraving of the "India Rubber Power Accumulator" of Mr. Hodge, of England. Mr. J. S. Livingston, of Micanopy, Florida, informs us that he suggested the same invention for a similar purpose more than three years ago, namely, the use of it for getting vessels off a beach, but he never once thought of getting a patent. That Mr. Livingston and Mr. Hodge invented the same thing, unknown to one another, there can be no doubt in our minds. It frequently happens that two, three, and more persons make a similar invention at the same time, all unknown to one another. The man who first embodies the mental creation and makes it operate, is held to be the inventor, but no more, we take it, than what he has deloped in his machine. At the present moment there are three interferences declared in the Patent Office for the same invention. Viewing things in this light, our readers will see how reasonable and just the views are which we entertain respecting the Telegraph Decision which we have discussed on another page.

Cast-Iron Car Wheels.

Mr. Stephen Thurston, of Scranton, Pa., has taken measures to secure a patent for an improved cast-iron wheel. The wheel has a single plate of a peculiar form, which connects the hub and rim, and is believed to be well adapted to stand the shrinkage in cooling when cast, and to stand the shocks which all wheels are subject to when running. The plate of the wheel has a double series of radial corrugations on it, united by a hollow band or single circular corrugation.

Turner's Improvements in Paper Making.

On page 166, in our List of Claims, there is one for improvements in making and sizing paper, granted to Geo. William Turner, of London. Since the American patent was issued we have examined the specification and drawings of the same, and we believe it to be a very excellent improvement. Unless it was considered a valuable improvement in the art, the inventor never would have paid $500 for the American patent fee.

WALLS' QUARTZ CRUSHER.

Figure 1.

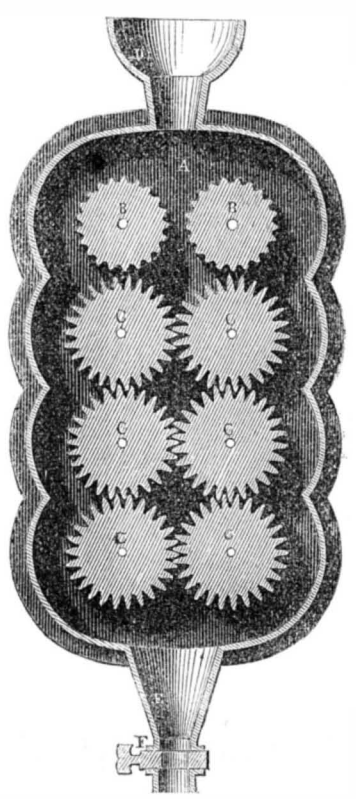
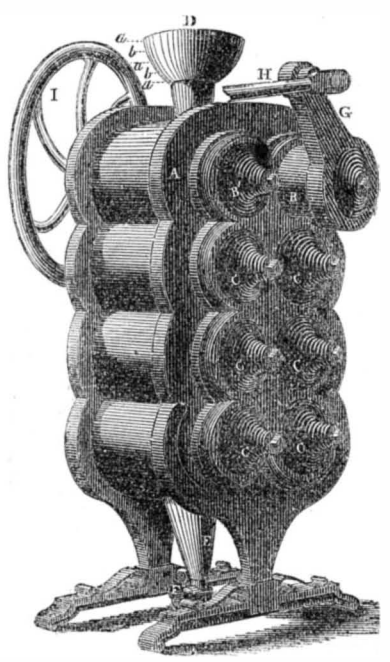


Figure 2.



The accompanying engravings representthe improved machinery invented for crushing quartz and other metallic inorganic formations, by Mr. Charles R. M. Wall. No. 44 Oliver st., this city (New York), who has applied for a patent for the same. Figure 1 is a vertical section taken through the middle of fig. 2, which is a perspective view. The same letters refer to like parts. A is the metal box; it has two sides, which have bearings for the journals of the crushing rollers, C C, C C, C C, and B B. There are recesses cast in the outsides of the box, A, and the journals of the rollers huve screws cut on the ends of their outside, on which are secured caps—seen in figure 2—in the inside of which is placed oiled stuffing fitted around the axle, so as to make the journals work perfectly water-tight in their bearings. The box is made perfectly water-tight. There is a division plate on both sides of the crushing rollers, and between the outer sides of the box, and these divisions —one division on each side—separate large pinions on the axles of the rollers from the rollers themselves. Each roller axis has a large pinion on it; these pinions are not seen, but they mesh into one another. D is a funnel; E is the outlet channel; F is a cock to close and open the outlet passages; H is the lever or handle of the driving crank, G. I is a fly-wheel. The quartz is admitted through the funnel, D, which is filled up with water to the top. This water exerts a great pressure—in accordance with the height of the column, and of the advantages of this, we have received strong assurances from those who have seen the machine operate; the italic letters, *a b, a b a*, represent the quantity of ore ground. For example, when, by opening the cock, F, the water in the funnel falls from *a* to *b*, then this indicates that one ton has beon ground; when it is drawn from *b*, to the second, *a*, then this indicates, that half a ton has passed out of the machine, and so on for the next. Each ton of quartz requires about forty-five gallons of water which is discharged at intervals from the cock beneath, in the consistency of mortar. Owing to the pressure of the water in every direction, it may be said, the specific gravity of the quartz, and the rollers is reduced, in action, according to the quantity of water employed; the lower rollers being deepest in the water, work easiest on their journals, therefore they do not wear out so fast, and there is also less friction. While the quartz is reduced at each revolution of the rollers, it is compressed and collected to the centre line to yield to the pressure of the rollers as it descends. Each roller makes a revolution in two seconds; the two upper ones being the most open receive the rough quartz and reduce it to small pieces, which are all pulverized to powder before they reach the bottom. A two horse-power machine will crush 1440 lbs., of quartz in one hour. The opening at the top rollers is calculated for pieces of from 2 to 3 inches in diameter. A fifteen horse power engine will reduce, in a large machine, pieces from eight to ten inches in diameter with great rapidity. This machine is not liable to get out of order. The rollers are of chilled cast-iron, and the whole cost is not great.

More information may be obtained by letter addressed to Mr. Wall.

Pseudoscope.

Prof. Wheatstone has recently invented a curious optical instrument named as above. It gives false conceptions to all existing objects; it makes the nearest points seem furthest off, and *vice versa*. A solid globe seems to be concave; the inside of a tea-cup seems like the rounded side of a projecting solid. A bust looks like a hollow mask; a framed picture on the wall looks, as it were, let into a wall, and the general objects on a wall as if placed behind it.

Escutcheon for Locks.

Mr. George Sommers, of Newark, N. J., has taken measures to secure a patent for an improvement in escutcheons for locks, by which he dispenses with the labor of cutting mortices and holes in trunks for the mechanism on the backs of the ordinary escutcheons, to make them fit snugly.

Wonderful Discovery---To Preserve Organized Specimens.

Messrs. Editors—Permit me to bring to your notice a process discovered by a citizen of this place, by which animal or vegetable matter (i. e. plants or flowers) may be preserved for any length of time: I have seen specimens of fish, reptiles, &c., beautifully preserved, which had been exposed, purposely, in an open building for more than fifteen years. In this variable climate a thorough test. Human subjects appear, after the same length of time, as if but recently dead. There is no shrinking or discoloration of the features—nothing revolting in their appearance, as in the Egyptian mummy. There is nothing removed—brains, entrails, all are suffered to remain intact. But the most extraordinary feature of the process remains to be told:—a few drops of the fluid, administered in the food or drink of birds or animals, increasing the dose gradually, will, in a few days, not only destroy life, but also effectually preserve the subject from the ravages of time or insects, worms, &c., and this is all that is necessary, either for a mouse or an elephant. Bodies have been preserved by it after decomposition or putrefaction had actually commenced.

The discoverer, a respectable German physician, who is more familiar with retorts and crucibles than he is with the English language, is anxious to place himself in communication with some responsible party who would either purchase or make some arrangement advantageous to both.

W. H. Shecut, M. D.

Charleston, S. C., Feb. 3, 1852.

[This is the announcement of a most wonderful discovery—valuable beyond computation. Every person who writes to Dr. Shecut on the subject, should pay their postage. A number of people write for information who do not act right in this respect.—[Ed.

Preserved Meats.

At Portsmouth, Eng., a great deal of naval stores of preserved meats have been condemned. They were found to be totally unfit for use, putrified and abominable. Thousands of canisters had to be thrown into the sea. This was beautiful work for inspectors of meat in the British Navy. The British Admiralty would do well to purchase the patent of Mr. Gail Borden, for making meat biscuit. This would be a great blessing to the British navy. They never would be troubled with bad preserved meats. It seems that the meats spoken of were purchased abroad, and the British Naval Commissary has been cheated most shamefully. The British Government should remember that the meat biscuit took a Council Medal at the Great Exhibition, We hope that the British Admiralty will pay attention to this.

The contractor for the Admiralty was a Jew named Goldner, who had the contract for supplying the Admiralty for six years. There were 8,660 cannisters: they cost about a million of dollars. What wretched officers there must have been at Gosport. This Goldner, it seems, lives in Hanover. If Napoleon or Wellington had to do with such a fellow, they would soon make him face the triangles.

The Woodworth Patent.

The Committee of Patents have under consideration the petition for the extension of this patent by Act of Congress for 14 years more after December 1856. If the patent be extended it will be the grant of a monopoly for 28 years. We do not consider the first 14 years of the patent while William Woodworth was alive. The patent was granted in 1828, and if extended now it will not expire till 1870—42 years from the time it was first granted. It is our humble opinion that the patent should not be extended, because it claims, as amended, more than was invented by the original patentee, and it has been the means of deeply injuring many inventors and others. This patent has made the fortune of a number of men who had no concern in the invention—men who could not invent a spatula. A patent should not be extended but to reward the inventor when he has not received sufficient remuneration for his invention. It is supposed that if this patent be again extended for 14 years, it will be worth seven million of dollars to the owners of it.

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Scientific American

NEW-YORK, FEBRUARY 21, 1852.

Geology---The Creation.

There are two classes of Geologists—at least among the whole body of them there are—one class believes in the deity of matter; the other in the Infinite Great Deity and Intelligent Creator of all matter, and the Maker of all the laws which govern its operations. The author of "The Vestiges of Creation," together with Prof. Oken, and others, have taught the doctrine that all life is progressive,—that it commenced at a point, and, through a long series of ages, step by step, arose from the lowest conceivable points of life. It is even asserted that the primary man was a dolphin—and all such nonsense. This class of geologists, as a fundamental proof of the correctness of their theory, stated that no animals of a high class of intelligence had ever been found in the Old Red Sandstone formations. It was a most flagrant blunder to predicate the theory of intelligent animals, springing successively from a low class of animated nature, because the latter only were found in the lower formations, for this is a mere fact, and is not accounted for itself. But this fact (supposed) to the author of the "Vestiges of Creation," has been riven from his doctrinal escutcheon, and proven to be a fixed falsehood. Hugh Miller, the Editor of the "Gospel Witness," in Edinburgh, Scotland, the author of "The Old Red Sandstone," "Footprints of the Creator," &c., who was once a stone mason, has, with a ponderous hammer of intellect and research, broken to pieces the whole theory of the materialists with as much ease as he used to break stones in Cromarty quarry. Every one should read his "Footprints." Another new discovery has added strength to his researches. Until last year, no vestiges of any reptile had ever been discovered in the series of deposits, called the Old-Red or Devonian formation, which is asserted to belong to a period far more ancient than the coal measures. At a late meeting of the British Geological Society, a paper was read by Dr. Mantel, giving an account of the discovery, in the crystalline yellow sandstone of the Old-Red, near Elgin, in the north of Scotland, of a series of thirty-four foot-prints of a turtle, after which, in the same strata, the remains of the skeleton of a small four-footed reptile was discovered by a Mr. Patrick Duff. This skeleton is the oldest fossil reptile yet discovered. It resembled, in some of its osteological characteristics, the small lizards. It was seven inches in length, resembling a water salamander, but with a broader back and longer limbs. It was capable of moving very fast on land and water. It has been named the *Telerpeton* (very old reptile) *Elginense*. This discovery will be of great interest to those who give attention to Geological studies. This discovery should teach men to be very cautious respecting the building of theories upon very slender data—upon suppositions.

Two courses of lectures have been delivered in this city (one not yet completed), on Geology: the one by Dr. Antisel and the other, by Prof. Guyot, of Cambridge, Mass. It had been said that Dr. Antisel inculcated the doctrine that Geology contradicted the Mosaic account of the Creation; and that Prof. Guyot was brought here to prove that Geology harmonized with the Scriptures—that it agreed literally with the first chapter of Genesis. The teachings of both have been about the same, only that Dr. Antisel, we think, is the most interesting lecturer, owing to his being a fluent speaker; both of them are learned and able men, but neither of them lectured to prove the harmony of Geology and the Scriptures—that is taking the first chapter of Genesis, word for word. They believe—not an original idea with either of them—that the days of Creation, mentioned in the said chapter, mean *periods of time*; neither of them even endeavored to prove that Geology agreed literally with the first chapter of Genesis. It is very easy to speculate in science; the said chapter of Genesis says "the evening and the morning were the first day," "the evening and morning were the second day," and so on for the six days, and then, literally, "the Sabbath day," which the Jews were commanded to keep literally. If the first six days were periods of time, we must not except the seventh day, which, ever since, has been a *period* of time, measuring, literally, twenty-four hours. That is the way we reason; and we believe it were just as easy for the world to be created in six days, as in six centuries—literally, however, as a matter of practical science, there is still a wide field for exploration and study on this subject before us; and it would be well for those who have opposite views to be very modest in their assertions, for we can only speculate, but never determine, how the world was created.

Town and Country.

By our modern improvements of railways, a great and grand system of international communication has been opened up. Places that were once separated by a journey, in winter, of three or four days or weeks, are now united together by a journey of the same number of hours or days. This is pleasant and should be profitable. During the long and severe winters, when there were no railroads, the cities had to depend for their winter supplies of provisions on trains of sleds or wagons, which, by slow and expensive journeys, found their way to greedy markets. It would be supposed that the influence and convenience of our railroads would have been of great benefit to our farmers, and the dwellers of our cities also. To our farmers—those living remote from cities, it is reasonable to suppose that they would now have a little more profit for their products, they having no long journeys to make, and the citizens have their provisions, &c., at less prices: that is, enjoy reciprocal benefits. This really is not so. We have been told that while provisions have been very high in our city this winter, the farmers in Illinois and Wisconsin have been selling their wheat as low as two, and two shillings and sixpence per bushel. There must be something wrong somewhere. It must be that a class of middle-men—mere traders, have arisen along our railroads, who by having a large capital at command, control the markets to the injury of our farmers, our mechanics, and the business people in our cities. The farmer and mechanic are twin brothers, their interests are one, for both produce commodities which they can exchange to mutual advantage. The blessings of railroads, so as to bring agricultural products to our markets to exchange for mutual benefit between the *producers*, we are afraid, are negatived by the class of men alluded to.

Potatoes are selling in this city for ten shillings per bushel, while in the interior of this very State they are selling for three, and in many places, we are told, for two shillings. Railroads are miserable dear carriers, if they cannot take potatoes three hundred miles for two shillings per bushel. It is easy to pack potatoes so as to preserve them from being frozen in the cars in the coldest weather. Take saw-dust, dry it in a kiln, and pack potatoes in boxes with a thick stratum of it around them, and there is no fear of their freezing. We speak of this thing so as to direct the attention of our farmers to the subject, for we have no doubt but all of them who have been receiving such poor prices for their products, have been thinking that we citizens have been enjoying the benefits of the same.

Telegraphs—Principles of Patents—Judge Kane's Decision.

In the last number of the Scientific American there is an article by Mr. H. Aiken, criticising our review of Judge Kane's decision. It maintained that the said decision was right, and that the views we entertained respecting it were wrong. As some may be led to adopt wrong views from the said letter, and as the writer of it, along with the honorable Judge and others, have adopted wrong views in respect to the principles of patents, we will dwell particularly on the *point* of *error*, after having brushed off a few of Mr. Aiken's wrong statements.

He says that when Mr. Bain applied for his patent, "the Commissioner (Edmund Burke) refused it and referred him to the invention of Morse, stating that it was an improvement on it—the late decision of Judge Kane confirms this decision." Mr. Burke never made any such decision, the question that he decided upon was an interference between Morse and Bain for two chemical telegraphs, Morse having invented one and made application for a patent. Morse's chemical telegraph was a mere toy, got up for the purpose of preventing another inventor from using a good invention—a course of conduct, we must say, too often pursued by one inventor or his interested friends towards another. If Mr. Aiken had been acquainted with the subject, he would not have made such a mistake; and here let us say, too many adopt views on all subjects without a due examination of them, and this we think was done in respect to the decision in the case referred to. We must say, and say it with all respect, that the principles of the Patent Laws are but imperfectly understood generally, because not studied logically, sincerely, and thoroughly.

What were the Patent Laws enacted for? To encourage useful inventions, discoveries, and improvements. What is a patent? A certificate of the United States Government, that the person—inventor—named in it has invented the new and useful improvement described in that specification of the patent. A patent is not granted for a certain thing done first, but is for *the new machine* which does a certain thing in a certain way. We are particular about this, for this is the error into which Mr. Aiken has fallen, and gets confounded in his ideas because he has not a simple and clear principle for a fundamental basis. He said Mr. Morse first recorded messages at a distance by electricity, therefore no other one has a right to *record messages by electricity*. This point was pressed upon Judge Kane by the counsel for Morse, and his decision shows he adopted it. We wish to analyze this doctrine and show how very wrong it is, and how contrary to the principles of justice, and the laws of patents.

"The recording of messages at a distance by electricity" is not an invention, it is a mere declaration of what an invention does or can do—it is no more. If this declaration was the invention—the thing patented—all that the patentee would have to do in the case of preventing others from using it, when he applied for an injunction, would be to prove, by witnesses, that *he is the man who first recorded messages at a distance by electricity*, that is all—the man, then, who recorded the message first, would be the subjective evidence, the thing done the objective evidence, and the machine which did it, an outsider. This would indeed be a queer way of deciding patent cases; it is totally contrary to the method of procedure in deciding upon them, but it is exactly in accordance with the decision of Judge Kane. It has not a rag of logic to commend it. We are the advocates of the rights of inventors; we like to see pirates punished, but we say one inventor has as good right to his own specific invention as another, whether the other be an older inventor or not. An invention is the thing patented—the specific machine, not an abstraction—not a *mere* declaration of what it has done first. The decision of Judge Kane makes "*the declaration* of *what a machine—this invention—does*," the thing patented. Although Mr. Aiken adopts this *ignus fatus* as a principle of patent law, he does get confounded and confused when he says:—"The object designed and result produced, by both Telegraphs, are the same (that is, to transmit messages), and the working instruments, in both cases, are precisely the same; that is, the marks are made by the point of a metallic instrument in both cases. The distinctive features of the respective inventions of Morse and Bain are the following: Morse marks the paper by an indentation; Bain marks the paper by coloring it without an indentation; Morse's marking instrument acts by moving; Bain's marking instrument acts without moving; Morse uses two conducting wires,—Bain uses one conducting wire. In both cases the paper, prepared to receive the impression, is moved under the marking instrument by machinery, prepared for the purpose, with equal regularity in each machine.

Morse's invention is valuable, and his title is good, if his claims are rightly made; Bain's invention is valuable and his title also good, if his claims are rightly made; but Bain cannot lawfully use any part of Morse's invention without his consent."

These remarks are to the point, because they consider the respective inventions not the *declaration* of what they can do, or do. But it is entirely wrong when he insinuates that the *recording pen* is either the invention of Morse or Bain. It is the invention of James Watt. He employed a *recording* pencil to mark his indicator card—it was a steam recording instrument, and here be it observed that the very first recording pen used by Morse was the *pencil*; and in 1837 the marks of his recorded messages were continuous angles; Watt's pencil traced his card in curves. In that year Steinheil had a recording telegraph in operation, which made dots and dashes. Abbe Moigno says it was invented in 1831 when Mr. Morse was in Europe, and one year before Mr. Morse claims to have had a single idea of his telegraph. We, however, take it from Mr. Vail's work that this recording telegraph of Steinheil was completed and working in 1837, and that it was more perfect in its action than Mr. Morse's telegraph at that time. But if Steinheil did invent his recording telegraph in 1831, we never could, in justice, advocate his right exclusively to a *recording telegraph*. He had a right to his specific machine, so has Morse, so has Bain, whether the one be older than the other or not, and as all these telegraphs are entirely different in construction, arrangement, and action, (Mr. Aiken does not describe the difference) it follows they are distinct inventions, and each inventor should be allowed the full privilege of making, using, and vending his distinct invention where he pleases. If Mr. Morse had discovered electricity, there might be some justice in claiming the *recording of messages* by it as altogether his invention, but a number of telegraphs had been invented ten years before he thought of such a thing, and for Mr. Aiken to say that he first made a double acting telegraph, betrays a great want of knowledge on the subject.

Electricity has two powers, one mechanical and the other chemical, Morse uses the mechanical power, Bain the chemical. They are entirely different, there is no identity between the two telegraphs, Morse's could not do what Bain's does, nor could Bain's do what Morse's does. Neither Morse nor Bain discovered these principles of electricity; they were discovered by others, and here let us observe, the principle of electricity which Bain uses is the oldest; it was discovered long before electro-magnetism.

If the spirit of Judge Kane's decision be carried out, it will raise a barrier to improvements in the arts and sciences, and defeat the very objects of our Patent Laws. Mr. Aiken affords us argument for this; the principle he adopted as the *point* of *patent* decisions, drives him, of necessity, to the miserable conclusion of placing the barbaric Chinese mode of printing over the splendid discoveries of Guttemberg, and would send us back to the dark ages; places the twirling of a thread on a stick above the invention of the spinning jenny; the loom of the Hindoo over the power-loom of Cartwright; the eliopile of Hero over the wonderful steam engine of Watt; and the steamboat of Hull over that of Fulton. The decision of Judge Kane is a daring presumption against the general rights of inventors; it sets the recorded message of Morse above the majesty of that finger which came from Heaven and recorded a message upon Belshazzar's palace wall. We believe that many poor and honest inventors have been deprived unjustly of their rights by such decisions. Let every man use his own invention if it is not identical with an older one, as Bain's is not. We care not for one inventor more than another; if we saw a man use Morse's electro-magnet as combined with his vibrating pen (his whole invention) we would speak out as strongly in defence of his rights, and have done so. We believe that the *decision*, and the compromise which has resulted from it, have deeply injured the rights of an inventor; it may look all prosperous just now to those who, in their worldly wisdom, have planned things apparently for their own success and benefit, but we have strong faith in the ultimate triumphs of justice.

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LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING FEBRUARY, 10, 1852

SHOE BRUSHES—By J. J. Adams, of Boston, Mass.: I claim the brush as constructed, substantially as described, with its polishing and blacking bristles arranged essentially as exhibited and explained.

WATCH-CHAIN SWIVELS—By J. Y. D. Arrowsmith, of New York City: I claim, first, the making swivels with a central spring to operate at both its ends against the knuckles of the joints, and for closing the opening, substantially as described.

Second, in combination with the swivel so made, I claim the swivel joint, made substantially as described.

HOSE COUPLING—By A. W. Cary, of Brockport, N. Y.: I claim the clasp of the particular form above described, having a part of one or both ends extended beyond both places of fastening, so as to extend the contracting pressure directly around the entire circumference of an inserted tube.

HORSE POWERS—By M. H. Cornell, of Feasterville, Pa.—I claim the method of regulating the motion by means of a brake worked by a governor, constructed substantially as described, so as to operate the brake with a force which increases with the velocity of the machine, until the motion is checked, and then instantly release the brake, so that no unnecessary labor may be imposed upon the animals, when working at the proper speed.

MILL FOR GRINDING QUARTZ—By Smith Cram, of New York City: I claim the crushing and grinding mill described, consisting of a trough, and one or more rotating wheels, the acting surfaces of both the wheels and trough being formed as set forth, so that the former will run in the latter, without tendency to run over its edges, except as it may be influenced by centrifugal force.

I also claim the combination of a double ridged wheel rim, with a trough of corresponding form, whereby the lumps of quartz or other substance being ground, are grasped by the wheel in its rolling, between the angular groove or furrow contained between the two ridges, and being thus prevented from escaping laterally, are crushed upon the ridge of the trough, with much less force and greater effect than if the angular action of the ridges was counteracted by the embedding of the lumps to be crushed among smaller granular and pulverized particles, which is always the case when the concave or inner angle is below, and the convex or outer angle above, which is the converse of the combination to which this claim refers.

I also claim the method of constructing the wheels of a crushing and grinding mill, of removable sections, substantially in the manner and for the purpose set forth

PREVENTING COLLISIONS ON RAILROADS—By T. A. Davies, of New York City: I claim the application of a sound-gatherer with an ear-piece to a locomotive engine, or train of cars, arranged as described, so that the engineer, or another, can ascertain, by sound, the approach of a locomotive, or train, in time to prevent collision.

GRAIN HARVESTERS—By Byron Densmore, of Sweden, N. Y.: I claim, first, the combination of the grooved cam and reciprocating lever, so arranged with each other as to give the rake, while in the act of clearing the platform of grain, an increased rapidity of motion, as compared with its backward movement.

Second, controlling the motion of the rake, by means of the combined action of the hand, ratchet, and lever, as set forth.

Third, the arrangement of the double eccentric for equalizing the power of the spring on the lever, as described.

Fourth, forming supports for the vibrating blade or sickle, by the plates, in sections separate from the fingers, to prevent choking, as described.

SHOVEL PLOWS—By James H. Forman, of Sharon, Ala.: I claim the use of the fulcrum pin and adjusting arrangement of the pin, D, in combination with the beam and stock of a plow, for the purpose of regulating the dip of the plowshare, substantially as set forth.

RAILROAD SWITCHES—By Amos Hodge, of Adams: I claim the system of levers, lock bolt and springs, arranged substantially as described, in such manner that the switches are always locked securely in the proper position for the direct passage of a train along the main track, unless intentionally unlocked and shifted, as described, and when shifted are automatically returned to their position in the line of the main track, and locked there, as soon as the force by which they were shifted is withdrawn.

In combination with the above, I claim the system of jointed levers, wedge blocks, sliding bars, dogs, dog lever, and hook-ended bar, or their equivalents, acting substantially as described, in such manner that the switch is shifted automatically, to permit a train to pass from a branch to the main track, and is maintained in such position until the last car has passed off it, when it returns, automatically to restore the continuity of the main track.

PORTABLE SHOWER BATHS—By Ferdinand Holm, of Brooklyn, N. Y.: I claim the use of the box or tub for a portable shower bath, made in two halves, in combination with the slide, leaves, and slides, G, &c., substantially as set forth.

GRASS HARVESTERS—By Wm. F. Ketchum, of Buffalo, N. Y.: I claim, first, sustaining the rack piece in the manner set forth, by projecting a beam from the frame above the grass and behind it, to which it is connected by the rods, as set forth.

And in combination therewith, I claim the shield plate in connection with the beam for sustaining the rack piece, substantially in the manner and for the purpose described.

APPARATUS FOR REGULATING AND MEASURING THE FLOW OF GAS—By Wm. B. Leonard, of New York City: I do not claim the indicating apparatus for showing the quantity of gas or fluid consumed in a given time; nor do I confine myself to the use of any particular mode of indicating it, as it may be performed in various ways. Neither do I confine myself to the peculiar form of clock movement or mechanism, for giving motion to the disc.

But I claim, first, the employment for the purpose of registering the flow of gases and fluids, through an aperture of a disc receiving a constant rotary motion, at an uniform speed, and giving motion to a wheel, in connection with the indicating apparatus and the cock, or its equivalent, in the manner described, to wit, the wheel, being moved farther from or nearer to the centre of the disc, as the cock is opened or closed, so as to govern the speed of the wheel, and, consequently, the indicators, according to the area of the passage through which the gases or fluids are passing.

Second, the manner of stopping the clock movement, when the cock or faucet is shut by the arm on the spindle, being operated by the wheel, and the lever, substantially as shewn.

Third, the manner of closing the valve, and shutting off the gas, or fluid, when the clock is run down, by an arm on a spindle, operated by a spring, and held back by a lever, stopped by suitable catches and released by the unwinding of the main spring, substantially as specified

GOVERNORS—By Ephraim Morris, of New York City: I claim an incline, or inclines, between a hub and cylinder on a shaft, in combination with a resisting spring, or its equivalent, whereby the motion of the parts due to the compression of the spring, or its equivalent, by the incline, produces motion to regulate the power in proportion to the resistance, as described.

QUARTZ CRUSHER—By James H. Swett, of Boston, Mass.: I claim, in combination with a cylinder containing the quartz, &c., and rotating in one direction, for the purpose of loosening up the material to be ground or crushed, the curved arms arranged upon a shaft therein, rotating in a contrary direction for the purpose of catching, carrying up, and throwing over the balls, by which said material is ground or crushed, the whole being arranged and combined in the manner set forth.

SEED PLANTERS—By Edward Wicks, of Bart, Pa.: I do not claim, exclusively, causing the distributing wheel (constructed with cogs or teeth, as described) to enter the body of the hopper, as such has already been done. But I claim the employment of a slide or its equivalent, through which the distributing wheel works, and that by being movable, operates to avoid friction of the wheel upon the sides of the aperture, communicating with the hopper, as liable to be produced by the play of the shaft upon which the distributing wheel is hung, essentially as specified.

DISSOLVING GOLD—By C. F. Spieker, of New York City; ante-dated Aug. 10, 1851: I claim the separating of gold from its ores, sands, or mixtures, in suitable apparatus, by the use of free chlorine gas, when absorbed by water alone, or by water in combination with an alkali, or an alkaline earthy or metallic chloride, containing an excess of chlorine, as set forth.

RAILROAD CAR BRAKES—By Birdsill Holly (assignor to S. Hewit, E. S. Latham, B. Holy, and A. Downs), of Seneca Falls, N. Y.: I claim the fixed and sliding rubbers upon the adjacent axle of a railroad car, in combination with the intermediate cog-wheels, the whole arranged and operating substantially as set forth.

EXCAVATING AND DREDGING MACHINES—By Calvin Willey, Jr., of Chicago, Ill., (assignor to C. Willey, Jr., and Urial Walker, of Babcock's Grove, Ill.): I claim, first, so arranging the frame upon which the endless chains, carrying the plows and buckets, are supported and carried, as to allow said plows and buckets to work outside of the line of said frame, and thereby to sink to any desired depth, without liability of the frame resting upon the bank to be removed, and limiting the depth to which the cutters may sink, as described.

Second, I claim so connecting the machinery for raising and lowering the frames carrying the plows and buckets, with the driving power of the machine, that the buckets may be lowered automatically, in such proportion to the motions of the other parts of the machine, as the character of the bottom to be excavated may demand, in the manner and for the purpose as described.

DESIGN.

STOVES—By Conrad Harris & Paul W. Zoiner, of Cincinnati, O.

Fishes of Northern New York---Frozen Fish, &c.---Conclusion.

ADIRONDAC IRON WORKS, Essex Co., N. Y.

MESSRS. EDITORS—Our lakes and streams, which, I believe, are the highest fishing waters in the State, and perhaps in the United States, were originally well stocked with the lake and brook or spotted trout. We have yet good fishing in all except lakes Sandford and Henderson, whose waters have been raised from their former level by the construction of dams, thereby destroying their spawning beds. Besides the trout, we have pickerel, perch, and a variety of smaller fish. The pickerel were introduced into Lake Sandford from Schroon Lake, five years ago. The stock originally came from Lake Champlain, though now our pickerel are quite different in appearance, and far superior, both in flesh and flavor, to the Lake Champlain pickerel: perhaps on account of the purity of water here. They have so multiplied in Lake Sandford, that upwards of three hundred have been caught through the ice, this winter, weighing from two to fourteen pounds each.

But to the point. I have witnessed, repeatedly, the two winters I have been here, the resuscitation of frozen trout, pickerel, and perch on thawing them out in fresh running water, even after they had been carried for miles.

It is only under certain circumstances, however, that they will revive. If caught on a day when it is cloudy and freezing hard, and if not hurt with the hook, and they freeze immediately on being thrown on the ice, they will revive on being thawed out. But if allowed to toss about in the sun, on a clear day, and probably not freeze for an hour or two after they are caught, then they will never revive.

It is such a common thing, that I have only to go back to the last day I was fishing for an example of it. I went down to Lake Sandford with one of our men, on the 29th ult., and at night we carried home in our packs eleven pickerel, all frozen hard and bent and curved, just as they happened to twist themselves before freezing. We put them into a trough of running spring water, and when thawed out found six of them alive. The others had probably been caught in the warmest part of the day, and died before they froze. The same day fifteen fine brook trout were brought from Lake Andrew, five miles distant, in a pack, and on being thawed out several of them revived; though I did not notice how many. They are, however, a much more delicate fish than either the pickerel or perch, and more easily hurt and killed than either of them.

On the afternoon of the 24th ult. I had fished faithfully for pickerel till sundown, without even getting an encouraging nibble; tired at last, of that fun, I took out a small hook and line, and soon had twenty-five perch; they froze almost instantly; I strung them on a crotched twig, carried them so for two miles, and when thawed out, found fourteen of them alive, the rest having been hurt either by the hook or the twig.

The pond behind the village, formed by the damming of the river, is full of young pickerel; they are all from three fish put in there last winter—one male and two females; every one of them were brought from Lake Sandford frozen, and were put into the pond after they had been thawed out in a trough. The male one I caught, it lay on the ice, frozen, for three hours, and then not finding a mate for him, I run a stick through his gills and dragged him home on the snow, two miles, threw him into the trough, and thought no more of him till next morning, when I found him alive and seemingly enjoying himself as well as his narrow limits would permit him. I took pity on the poor fellow, carried him down to the pond, and he went off with a dart.

These are but a few instances of what occurs here almost every day the winter through. The fact of their resuscitation, after being frozen as I have described, is known to every one here who is in the habit of fishing in winter, and cannot escape being noticed, as the weather here is cold enough almost all the time to freeze them, and they have to be thawed out before they can be cleaned.

I have heard some say that they have taken trout when frozen and whittled the fins and tail off, and on being thawed, found them alive; but I have never tried this nor any other experiment with them, and would not vouch for the truth of it. ROBERT CLARKE.

[We have received a great number of communications on this subject, for which we are very much obliged to our correspondents. We have never requested information on any subject from our readers that we did not receive kindly, freely, and promptly. No paper in the world has such a number of obliging readers: for which we are indeed thankful.

We have published information on the subject of the resuscitation of frozen fishes that sets the matter forever at rest, and will be news to many of our readers, who live South. In the foregoing letter it will be observed that a certain fact is stated, which militates against a statement made in our last week's number, viz., that all resuscitated fishes were rendered blind. We have evidence here that frozen fish, transported a number of miles, have become the parents of a numerous progeny—they retain all their functions, even after being frozen. We do not intend to publish any more on the subject at present; we have received a great many well written letters on it, and being so numerous we could not publish but a very few.—[ED.

Strike of the English Engineers.

The great strike of the working engineers continues to engross more of public attention than would be easily believed by those at a distance. The quarrel remains without even a prospect of accommodation, both parties being equally opposed to submission. One feature of the strike is remarkable, and we believe unprecedented; we mean the resolve of the men, as far as practicable, to set up for themselves, and execute orders on their own account. This is a much more sensible course than that of distributing their funds in the shape of relief albeit the probability of ultimate success is but small, judging from the fate of former co-operative experiments. Several of these are now in the course of trial by tailors, bakers, printers, and others in the metropolis, but though they have received much extraneous aid from well-wishers in the principle involved, we do not hear of one unequivocal case of success. Some thousands of engineers are now unemployed in London, Manchester, and other places, owing to their resolve to "organize labor," and dictate terms to their employers. The struggle will be of no common kind, and promises to be a lasting one.

Improvement of the Ohio River.

A large meeting was held at Pittsburg, Pa., on Monday, the 9th inst., relative to the obstruction to navigation by the falls of the Ohio at Louisville. The object of it was to memorialize Congress to construct an additional canal around the falls at Louisville. It was suggested that the new canal should be constructed with locks, 400 feet long on either side of the river, so as to prevent the present great amount of navigation being obstructed. Elwood Morris, the well known civil engineer, addressed the meeting, and alluded to the magnificent scheme of Mr. Ellett, C. E., which we have spoken of more than once in the Scientific American, viz., the improvement of the Ohio River by making artificial reservoirs near its sources, so as to retain as much water as will supply the river with a certain quantity during the dry weather, and maintain its depth, at a specific line, at all times, for steamboats and other vessels. The Ohio River is too shallow during a part of the dry summer weather, to allow vessels to pass up or down; this improvement would do away with the evil complained of. The cost for the construction of suitable reservoirs, it is estimated, would be about $1,500,000.

Meteorological Observations.

A pamphlet has been received from Washington, containing a correspondence in relation to a universal system of meteorological observations for sea and land. It is by Lieut. Maury, U. S. Navy, the able officer who is at the head of the National Observatory, and who has done and is doing so much for the spread of nautical knowledge in our country.

OBSERVATORY, WASHINGTON, 1852.

The Government of Great Britain having greatly enlarged its system of meteorological observations, and wishing to extend it still further, invited the co-operation of the Government of the United States therein; the Government of the United States, appreciating the importance of the subject, and desiring to make the system of observations universal, suggested the propriety of including the sea as well as the land, and of enlisting in the meteorological field the voluntary co-operation of the commercial as well as the aid of the naval marines, not only of England and the United States, but of all other maritime nations.

For more detailed information on the subject, I refer to the accompanying pamphlet. By it, it will be observed that I am authorized to confer with individuals, societies, corporations, &c., "at home and abroad," upon the subject, and in concert with them to agree upon such general system.

Therefore, I have the pleasure of inviting your attention to the subject, and of soliciting such assistance in devising, and such co-operation as may be convenient and proper for giving effect to the undertaking. Respectfully, &c. M. F. MAURY.

Upas Tree on the Isthmus.

The Panama Star states that a man named James Linn, while hunting on the Gorgona Road, grew tired and lay down to sleep under a tree. On waking he found his limbs and body swelling, and death soon ensued. The Star says that a tree grows on the Isthmus under which cattle avoid eating or ruminating.

The tobacco crop of Missouri, for 1851, is estimated at from 14,000 to 15,000 hhds., against 12,000 to 13,000 the preceding year The quality is said to be good.

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TO CORRESPONDENTS.

A. R. Appleton will please inform us in what part of the world he resides—his letter failed to state this important point. Upon receipt of this information we shall address him.

J. N., of Wis.—Your employment of molten lead to generate the steam, will not answer, for the heat is 594 degs., and water will become spheroidal at 500 degs., and, beside, no fuel could be saved, for that is just in proportion to raising a certain quantity of steam in a given time. We cannot see how you could gain anything by your tier of cylinders in the frame, for there is no power lost by the static pressure in the boiler. Except in using steam expansively, there is no benefit derived from an increase of cylinders; and to use it expansively, we think Wolfe's plan the best.

J. S. of N. Y.—We do not know of a single portable *baker's* oven. There are none made in this city. The only substitute for them is the small summer furnace ovens sold at all the stove stores.

B. D. J., of N. C.—Oil is better for the eyes than candles, as the light is more steady. Tallow candles are cheaper than sperm. There is no way to make tallow candles last longer except by mixing some wax or good rosin with tallow. If your eyes are subject to be hurt by candle light, your only hope is to read or work less by candle light.

A. S., of N. H.—Your claims would be made on the machine and not on the form of the card, as we judge from your statement that the machine is your invention. A small model will first be required. $2 received.

W. S., of Ohio.—We have never seen a railroad truck constructed like yours, and have no doubt a patent could be secured. Experiments alone can establish its practicability.

W. G. H, of Pa.—We do not know who makes the machinery you speak of. Perhaps Jacob Gray, of Scotia, N. Y., can inform you.

K. H., of N. Y.—We have seen unsuccessful experiments made with the apparatus, and believe it impracticable. This is but a reiteration of our frequently expressed opinions.

G. C., of Ohio.—Lime is better than hydraulic cement to protect iron in a dry situation. It protects the iron by its becoming a carbonate after it is exposed to the air for some time, it absorbs carbonic acid gas from the atmosphere and thus protects the iron. But it is not a perfect protector.

E. T., Jr., of Va.—We have examined your sketch of improvements in high pressure engines. The loss would equal the gain. It will meet with the same resistance from the atmosphere as it escapes from the pipe, *d*. There can be no gain excepting in cases where the steam might be suffered to expand more than it usually is, there is a patent in existence for the power of a wheel placed in the condenser of a condensing engine, but it is considered of no moment whatever.

A. F. W., of Pa.—We do not know where a Fourneyron wheel is running on a high fall; but the Lowell Machine Co. make them. It does not infringe on any patent. Whitelaw & Stirratt's wheel, made at Cold Spring, N. Y., is a good one.

J. B., of Pa.—Your Electro-Magnetic Engine is not new; it is well known to us, although we have no doubt but it is new to you.

J. M. H., of C.—Plumbago, mixed with grease of all kinds, for lubricating journals, has long been known and its qualities understood. If your composition is entirely new, and is so useful, you can get a patent. If your lining for the journal boxes is new and useful you can get a patent. The Babbitt Metal Boxes are patented.

J. M., of Minesota.—We highly appreciate your well expressed compliment to the Scientific American. Permit us to wish you health, happiness, and prosperity, the richest earthly gifts to man.

J. C. B.. of Texas.—We have submitted your letter to the proprietors of the Stone Dressing Machine, with a request that they will answer your enquiries.

E. L., of O.—If you want information relative to wind mills you are advised to correspond with Geo. Page, Baltimore, Md.

J. K. G, of Canada.—You will notice that we do not publish engravings of stoves in our columns, the reason is that there are so many that we could not profitably occupy our columns with engravings of them, as stove dealers are anxious to give all possible publicity to their improvements, and we could not refuse one and accept another.

Money received on account of Patent Office business for the week ending February 14.

V. P. & B. K., of N, Y. $50; H. & B., of N. J., $30; G. S., of N, Y., $30; McD. & B., of Pa., $55; P. F. H., of N. Y., $30; H. U., of N. Y., $10; J. J., of N. Y., $70; S. B.. of N. Y., $25; N. W., of Mass., $53; S. G., of N. Y., $35; W. R., of R. I., $12; E. B., of Pa., $35; S. & S., of Conn, $25; R. A. V., of N. Y. $15.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Feb. 14:—

H. & B., of N. J.; E. P. G., of N. Y.; C. S., of S. C.; N. W., of Mass.; S. & S., of Conn; R. A. V. of N. Y.

New Arrangement.

Several of our readers have expressed a wish to subscribe for some literary journal in connection with the Scientific American, not feeling able to take both. We have entered into an arrangement with the publishers of the "American Model Courier," of Philadelphia, and the "American Union," of Boston, which will enable us to furnish either of the two, with the Scientific American, for $3 per annum. They are literary journals of the first order, and are widely circulated in all sections of the country.

ADVERTISEMENTS.

Terms of Advertising.

One square of 8 lines, 50 cents for each insertion.
" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

Advertisements should not exceed 16 lines, and cuts cannot be inserted in connection with them at any price.

MORTISING MACHINE.—Dear Sirs: I received the Portable Mortising Machine about 3 weeks ago; I have used it, and am very well pleased with it. It is the best plan of a machine of the kind I have ever seen. W. R. McFARLAND.
Nashville, Tenn., 1851.
This machine is simple, durable, and effective, and is boxed and shipped for the low sum of $20.
MUNN & CO.

VERY IMPORTANT—To Blacksmiths, Machinists, and Speculators—The undersigned owns one-half of the patent, for the United States, in J. Van Brocklin's Machine for Heading Bolts, and is now exhibiting the same at No. 45 Gold st, from 1 to 4 o'clock, P. M. It can make from 4 to 6 plain or ornamental heads per minute, by hand, and with perfect accuracy. Its principle is well adapted for making all kinds of Pivots and Bolts, from the smallest to the largest. The subscriber would sell his whole interest in the patent on reasonable terms, as other business claims his attention, but for the present will dispose of rights as desired. Call and see its operation, or address S. McLEAN, No. 118 Tammany Hall. 1*

TO ENGINEERS, RAILROAD COMPANIES or MANUFACTURERS—The advertiser, who is a thorough Engineer and Machinist, and has been extensively engaged in business (steam engines, and heavy machinery) for several years past, wants a situation as Superintendent, Manager or Draughtsman and Bookkeeper, in any operation requiring such qualifications. No objection to going to any part of the United States. Satisfactory testimonials can be produced as to qualifications and moral character. Communications addressed to THOMAS FRANCIS, No. 30 North Tenth st, Philadelphia, will receive prompt attention. 23 2*

A CARD—The undersigned begs leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers, and manufacturers of all kinds of instruments, to his new and extensive assortment of fine English (Stubbs) and Swiss Files and Tools; also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English styles—which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN, Importer of Watchmakers' and Jewellers' Files and Tools and manufacturer of Mathematical Instruments, 154 Fulton st. 23 13*

MACHINERY—1 Screw Bolt Cutting Machine nearly new; 2 new Dcik's Patent Punches, No. 2, suitable for boiler makers; 2 small ditto, and 1 bank-note or tobacco press, Dick's patent., One steam pump for supplying water to a 50 horse-power boiler, and several second-hand engines, different sizes, for sale at low prices by WM. D. ANDREWS, 187 Cherry and 452 Water sts., N. Y. 23 2*

IRON FOUNDERS MATERIALS—viz.: fine pulverized Sea Coal, Anthracite and Charcoal, Black Lead and Soapstone Facings. Iron and brass moulding sand; Core sand and flour; English Fire Bricks for cupolas, &c. Fire Sand and Clay—for sale by G. O. ROBERTSON Liberty place, (near the Post Office) N. Y. 23 10*

1852 TO 1856.----WOODWORTH'S PAtent Planing, Tongueing, Grooving, Rabeting, and Moulding Machines.—Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Patent Machines. Price from $150 to $760. For rights in Westchester County, and the other unoccupied towns and counties of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 23tf

THE SUBSCRIBER is now finishing four 14 horse engines, with boiler and apparatus all complete—price $1200 each. Several 6 horse engines extremely low: also, several of smaller capacity, completely; also, several power planers, now finishing. Galvanized chain for water elevators, and all fixtures—price low—wholesale and retail. Orders, post-paid, will receive prompt attention. AARON KILBORN.
No. 4 Howard st., New Haven, Ct. 23 10$

DESIRABLE PROPERTY FOR SALE—The Dekalb Manufacturing Co. will offer for sale their Cotton Factory, Corn Mill, and Tannery, near Camden, S. C. The situation is pleasant and healthy, offering a veay desirable investment for capitalists; the water-power is amply sufficient for all purposes; within one mile of the terminus of the Camden and South Carolina R. R., affording daily opportunity for the shipment of goods. The Cotton Factory is now in operation, making Osnaburgs and Yarns, and contains 1680 spindles, 20 30-inch cards, and 40 looms, in good condition, with machine shop attached, with lathes, cutting engines, etc. The Corn Mill received last year, as toll, 1400 bush. of corn: the Tannery has 36 vats, and bark mill. Will be sold on a credit of 1, 2, and 3 years, at public sale, 1st March; open for private sale until then Apply to THOS. LANG or WM. ANDERSON, Camden, S. C. 22 3

TO STAIR BUILDERS—The "UNIVERSAL STAIR BUILDER,' just published by R. A. Cupper, Architect, New York, is a new treatise on the construction of Stair Cases and Hand-Rails, showing plans of the various forms of Stairs, with a new method of sawing the twist part of any hand-rail and joints square from the face of the plank, and to a parallel width, the same as for any horizontal work—which can be done at the saw-mill for one-sixth of what it cost by hand; the saving of material and labor is from 50 to 100 per cent. This system is now adopted in New York, Philadelphia, and Boston. It is pronounced by the most scientific Stair Builders to be the greatest discovery ever made. Price $6. For sale by Wm. Gowans, 178 Fulton st., N. Y.; Benj. Greene, 124 Washington st., Boston, and 240 West 26th st., N. Y. Books forwarded to any part of the United States an receipt of the money. 22 3*

VENTILATION.—Mr. Ruttan, of Coburg, Canada, is desirous of an opportunity to direct the erection (for ventilation) of a good dwelling or school house in the city of New York. For particulars inquire at the Scientific American Office. 15 10*

MACHINIST'S TOOLS.---Marshall, Bement & Colby, (successors to E. D. Marshall & Co.) Callowhill street, west of Schuylkill Third, Philadelphia, Pa., are prepared to make to order, and keep on hand Machinist's Tools, such as Planing and Compound Planing Machines, on a new and improved plan, Slide and Hand Lathes, Upright and Horizontal Drills, Upright Boring Machines, Improved Screw and Bolt Cutting Machines, with P. W. Gates' Patent Dies and Taps, or with the common Dies, Gear Cutting Engines, Slotting and Paring Machines. Also keep on hand Washburn & Whiton's Patent Scroll Chucks, of all sizes. All orders by letter or otherwise will receive their prompt attention. E. D. MARSHALL, WM. B. BEMENT, G. A. COLBY. 21 10 *

CHAS. W. COPELAND, Consulting and Mechanical Engineer, Surveyor of Steam Machinery, &c., No. 68 Broadway, N. Y., superintends the construction of steam vessels and steam engines, and machinery of every description; specifications and contracts prepared; also general plans and drawings in detail furnished. Steam engines surveyed and valued, and condition reported. Mr. C. also acts as agent for the purchase and sale of steam vessels, steam engines, boilers, &c. 21 10*

MALLEABLE IRON FOUNDRY, EASTON, Mass—The subscriber continues to manufacture castings of every variety, for machinery and other purposes, of the best quality, at the above establishment. We have facilities for making castings 5 1-2 feet in length. Persons wishing castings can send patterns to Eastern Express, Boston, Mass. All letters will be promptly attended to.
21 10* DANIEL BELCHER.

CLOCKS FOR CHURCHES, PUBLIC BUILDINGS, RAILROAD STATIONS, &c., and REGULATORS FOR JEWELLERS.—The undersigned having succeeded in counteracting effectually the influence of the changes of the temperature upon the pendulum, and introduced other important improvements in the construction of clocks, are prepared to furnish an article, superior in every respect (the highest grade warranted to vary less than two minutes in a year) to any made in the United States. Ample opportunity will be afforded to test their qualities. Glass (illuminated) dials of the most beautiful description furnished. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, Long Island, N. Y.
"At the Oakland Works of Sherry & Byram there are made some of the finest clocks in the world."—[Scientific American.
"Mr. Byram is a rare mechanical genius."—[Jour. of Commerce. 19tf.

THE EXCELSIOR Sand and Emery Papers. are offered as new and superior articles, being manufactured by an improved process; the paper is made from the best Manilla hemp, and consequently is very strong and lasting; the grit is of the sharpest and most enduring kind, and is firmly attached to the paper with a remarkable evenness of surface; their freeness from ridges, stripes, and other imperfections, recommend them to the notice of consumers. These papers have been used by many of our first mechanics, and are pronounced superior to all others. Every sheet is stamped WM. B. PARSONS, and warranted. Samples furnished at the office, No. 187 Water street, New York. WM. B. PARSONS,
14 6m* Sole Proprietor.

P. W. GATES'S PATENT DIES FOR CUTTING SCREWS—Patented May 8th, 1847.—This Die cuts Screws of any size, V or square thread, by once passing over the Iron. Also, Lead Screws for Lathes, Hoisting Screws, &c. All orders for Dies and Taps, with or without machines, will meet with prompt attention by addressing P. W. Gates, or Gates & McKnight, Chicago; Marshall, Bement & Colby, Philadelphia; Woodburn, Light & Co., Worcester, Mass. References—All the principal machine shops in New York, Philadelphia, and Boston. 13 6m*

METALLIC LETTERS AND FIGURES FOR PATTERNS.—

Price	3cts.	3cts.	3cts.	3cts.	4cts.	4cts.	4cts.
Size,	5-16	3-8	7-16	1-2	9-16	5-8	3-4

6cts., 1 in.; 7cts., 1 1-4 in.; 8cts., 1 1-2 in.; 10cts., 2 in. Also Gothic Style: 3cts, 1-4 in.; 4cts., 1-2 inch. Manufactured by COWING & CO., Seneca Falls, N. Y. Orders solicited. They can be sent to any part of the Union, either by Mail or Express, as all packages are weighed and sent the cheapest way. 22 4*

TO MACHINISTS.---William B. Parsons, Manufacturer of the "Excelsior" Sand and Emery Paper, has on hand a very superior article of Corundum, suitable for emery purposes. This has been thoroughly tested at the Nashua Lock Works, Nashua, New Hampshire, and proved to be second only to emery, and perfectly free from dust and extra grains of grit. For sale in any quantity, and all numbers, at 187 Water st, N. Y. WILLIAM B. PARSONS.
20 4*

TO ARCHITECTS, SCULPTORS, &c.---The Commissioners of the Greene and Pulaski Monument Lottery Fund, offer Three Hundred Dollars for an approved design for a Monument, to be erected to the memory of Count Pulaski, in Chippewa Square, Savannah. Architects, Sculptors, Designers, &c., are invited to offer plans and specifications for selection, and to evince their own taste and judgment as to design, with no other limit than the cost, which must not exceed $17,000. Designs will be received until the 1st day of April, 1852, by the subscriber, from whom any further information may be had.
WM. P. BOWEN, Secretary.
Savannah, Geo., Jan. 13, 1852. 21 6*

TO INVENTORS.---I beg respectively to suggest that the establishment of a National Inventor's Institute, with regularly organized branches, would be the best means to assist your efforts to superintend your interests. and protect your patent rights. JAMES NIXON, Potosi, Wisconsin. 21 5*

ONE DOUBLE ENGINE of six-horse power, second-hand, used about one year; the size of cylinders, 4 inch bore and 12 inch stroke, and furnished with pump, regulator, and all attachments; the boiler is horizontal tubular, 7 feet long, 3 1-2 inches in diameter, and requires no brick to set it, the fire being made inside the boiler. The above engine will be sold for $400 cash, delivered in New York.
MUNN & CO.

TO FELLOE AND SNATH MAKERS—The undersigned having purchased the entire right of A. W. Johnson, for his machine for bending carriage felloes, &c., are now prepared to sell State or county rights for said machine; having used said machine for several years, we know it to be a saving in timber of 30 per cent, and more expeditious. Persons can see one of the machines at work at the manufactory of W S. Johnson & Co., St. George's, Del.; also felloes of all kinds. Shafts and carriage stuff always on hand, and at prices to suit dealers in the above. WM. G. JOHNSTON & Co.,
22 10* St. George's, Del.

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., have on hand six 12 ft. slide lathes, 28 in. swing; also four 8 ft. do.; 21 in. swing, with back and screw gearing, with all the fixtures; one 5 ft. power planer; 12 drill presses, 4 bolt cutting machines, 30 small slide rests; 5 back geared hand lathes, 21 in. swing; 15 do. not geared; 8 do. 17 in. swing on shears 5 1-2 feet; 25 ditto with and without shears, 13 in. swing; counter shafts, all hung if wanted suitable to the lathes. Scroll chucks on hand; also index plates for gear cutting. Cuts of the above can be had by addressing as above, post-paid. 9tf

BEARDSLEE'S PATENT PLANING MAchine, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 23tf

WATTS & BELCHER, Manufacturers of Steam Engines, Lathes, Planing Machines, Power Presses, and Mechanics' Tools of all descriptions. Orders respectfully solicited and punctually attended to. Washington Factory, Newark, N. J 7 20*

PAINTS, &c. &c.—American Atomic Drier, Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.
QUARTERMAN & SON, 114 John st.,
23tf Painters and Chemists.

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 13 tf

WOODWORTH'S PLANING MACHINE—For sale, the right to use this justly celebrated labor-saving machine in the following States, viz., Pennsylvania west of the Allegheny Mountains, Virginia west of the Blue Ridge, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Alabama, and Mississippi. For particulars apply to the Proprietor, ELISHA BLOOMER, 208 Broadway. 17 12*

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, New Haven, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 22tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. 60 Beaver N. Y.—The subscriber is constantly receiving and offers for sale a great variety of articles connected with the mechanical and manufacturing interest, viz.: Machinists' Tools—engines and hand lathes; iron planing and vertical drilling machines; cutting engines, slotting machines; bolt cutters; slide rests; universal chucks &c. Carpenters' Tools—mortising and tennoning machines; wood planing machines &c. Steam Engines and Boilers from 5 to 100 horse power. Mill Gearing—wrought iron shafting; brass and iron castings made to order. Cotton and Woolen machinery furnished from the best makers. Cotton Gins; hand and power presses. Leather Banding of all widths made in a superior manner; manufacturers' Findings of every description. P. A. LEONARD. 10tf

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

RAILROAD CAR MANUFACTORY—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty, and good taste, as well as strength and durability, we are determined our work shall not be surpassed. JOHN R. TRACY,
14tf. THOMAS J. FALES.

McCORMICK'S PATENT REAPERS AND MOWERS.—1700 of these machines, for which the great Medal of the World's Fair was awarded, are being manufactured at Chicago, Ill, with the intention of supplying the South-eastern States for the next harvest The gold medal of the Chicago Institute was recently awarded for this Reaper and Mower, tested against two other mowers, in cutting prairie grass; and the first premium of the State Agricultural Societies of Wisconsin, Michigan and Pennsylvania, were also awarded at their late Fairs. Price $120 at Chicago, and $122 delivered at Philadelphia; terms otherwise accommodating. 9tf

PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 pounds, price $600. I will furnish a man with each lathe, who will turn and finish axles for 50 cents each, if desired. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 7 6m*

LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11tf

HAWKIN'S Stave Dressing Machine—Is now in operation in the city of Milwaukie, Wis., and will dress from 6 to 8000 staves per day, ready for the truss hoops, and at one operation. Rights for States and Counties, and also machines, for sale, apply to WM. HAWKINS, Patentee, Milwaukie, Wis.
15 20*

A. B. ELY, Counsellor at Law, 46 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 13tf

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SCIENTIFIC MUSEUM.

Scientific Memoranda.

MANUFACTURE OF SALT IN ENGLAND.—There are ninety-seven establishments in England, mostly in Cheshire and Worcestershire, which manufacture salt. These works produce on an average 800,000 tons of salt per annum, of which one-half is exported to the United States and Canada, the Baltic, Scotland and Ireland, and the remainder is consumed at home in alkali manufactures, for domestic purposes and as manure. The town of Newcastle-on-Tyne consumes 70,000 tons annually.

PUMPING OUT THE HARLAEM LAKE.—The pumping out of Harlaem Lake is approaching its end; already it is so low that ditches have to be dug in the bottom to lead it under the pumps, by which the three large steam engines suck it out; 30,000 acres of good land will be made by the operation.

This lake is in Holland. An engraving of the engines used for pumping it dry is published in Vol. 2 Sci. Am.

NEW SUSPENSION BRIDGE.—The wire suspension bridge at Fairmount, Va., will be over the Monongahela, about one hundred miles from the Ohio, and more than fifty above any ordinary steamboat navigation. The Wheeling Gazette says that Dewey & Co., of that city, have the contract for the wire of this bridge, and also one over Elk river, at Charleston.

TO MAKE HENS LAY.—The South Carolinian says, a neighbor states that hog's lard is the best thing that he can find to mix the dough he gives to his hens. He says that one cut of this fat, as large as a walnut, will set a hen to laying immediately after she has been broken up from setting, and that, by feeding them with the fat occasionally, the hens continue laying through the whole winter.

GLASS COFFINS.—The Philadelphia Ledger records the invention, by Mr. T. B. Rapp, of that city, of glass coffins. They are made air-tight, and of sufficient strength to prevent bulging. The durability of glass is well known, and the remains of the departed being entirely protected, decomposition goes on very slowly.

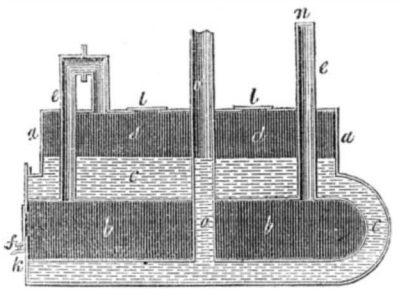
A FALLING COMET.—A writer in the Boston Traveller, giving an account of Encke's comet, which has recently made its re-appearance, says that it has the striking peculiarity that its orbit and periodic times are gradually decreasing. This comet, it is said, "is certainly falling towards the central luminary;" not theoretically falling as the earth and other planets are supposed to fall towards the sun, as their orbits bend around the centre of revolution, but actually falling, actually drawing nearer at every revolution. Sir John Herschel believes "that it will ultimately fall into the sun," provided it is not "dissipated" before that time.

TOO COLD FOR THE FISH.—"We learn," says the New Bedford Mercury, "from Capt. Stubbs, the vigilant keeper of the light-house on Cuttyhunk, that during the severe cold weather of the last few weeks, shoals of Tautog or black-fish were actually driven out of their haunts around the rocky ledges of that island, and came ashore in large numbers. At Nominsha Bight, Gay Head, they were gathered up along the beach in cart-loads, and sent to the New York markets. Such an occurrence has not been known since the winter of 1816, when Buzzard's Bay was entirely closed over, and persons passed and repassed on the ice, during several days, the whole distance between Elizabeth Islands and the main land.

HOOSIC MOUNTAIN TUNNEL.—One of the most practical and scientific railroad engineers in this country, says the Boston Courier, has recently returned from a tour of Europe, having visited all the principal railroad tunnels in England, Germany and France, and has in his possession many interesting facts and statistics in regard to them. The longest tunnel is that of the North, nearly four miles in length, excavated through solid rock by hand drills, at a cost of about three million dollars. The gentleman alluded to expressed a decided opinion that the project of tunnelling the Hoosic elevation is not only feasible and expedient, but imperatively demanded, to concentrate a fair portion of Western business to the State of Massachusetts, by the shortest, cheapest, and levelest railroad route from west to east. Three new steam drills, recently manufactured in Boston, will shortly begin to eat their way into the hidden recesses of the Hoosic mountain.

On Boilers.---No. 13.

FIG. 22.

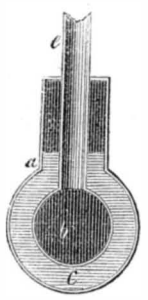


A great number of steam boilers have been invented and brought before the public at various times since the steam engine received its great improvement from Watt. Steam boilers are important as a subject, more so than many suppose. Some seem to think there is power in a steam engine, but there is none; the power which moves it is the steam, and the boiler is the magazine of force. Skillful engineers are just as careful of their boilers as of their engines. A defective boiler is worse than a defective engine.

The accompanying engravings represent a boiler patented by Messrs. Horton & Fisher, of Birmingham, England, in 1823; its peculiarity seems to consist in the placing of a reservoir for the generated steam within the boiler.

Figure 1 represents a longitudinal section of the boiler, and figure 2 a transverse vertical section. The same letters refer to like parts; *a a* shows the external form of the boiler, around which the furnace and flues are constructed; *b b* is the internal vessel for containing the generated steam; *d d* is that part of the boiler filled with water and replenished by the tube, *o o*, from another reservoir placed above. The heat having caused the steam to

FIG. 23.



fill the upper part of the boiler, *d d*, it passes from thence to the bent tube, *e e*, into the steam reservoir, *b b*, below, from whence it is conveyed to the engine through the tube, *e*. At the upper part of this tube, at *n*, a safety valve is placed for regulating the force of the steam. At *f* is a cock for drawing off whatever water may be formed in the steam reservoir, and under this, at *k*, is an aperture for cleaning out the boiler; *l l* are man-holes.

CONE TUBULAR BOILER.—In 1824 Mr. Joseph Buchanan, of the United States of America, and John T. Paul, a native of Geneva, Switzerland, invented a boiler alike in every respect at about the same time, and the one knew nothing of the other's invention at the time. The boiler consisted of a long tube of small diameter, coiled into a conical form around the inside of the furnace, within which the fuel was placed. The interior of the furnace was a casing of sheet iron. and it had flanges to support the pipe. The fuel was supplied through the upper part of the cone. This boiler was proposed for locomotives and other boilers.

The inventor of tubular boilers was Col. John Stevens, of Hoboken, N. J., the father of R. L. Stevens, Esq., whose name, as connected with improvements in steam navigation is world-wide. This tubular boiler was invented in 1805, used on a small steamboat by Mr. Stevens, and patented in England in the same year. It was the foundation boiler of those tubular boilers which have done so much for steam navigation and locomotives.

In 1824 a Mr. John More, of Bristol, England, obtained a patent for a boiler, consisting of a series of tubes set up vertically, and arranged in a circle with their upper ends entering a circular chamber and then bent round in a ring horizontally; the lower ends of the pipes entered a similar chamber ring at the bottom. Upon a level with the lower ring, and within the circle of the vertical tubes, the grate was fixed for the fire. The water was supplied through the tubes to the lower chamber, and the upper chamber answered the purpose of a steam box.

In the same year (1824) Samuel Hall, of Basford, England, obtained a patent for an apparatus to generate and apply steam and carbonic acid gas to work an engine. Steam was passed from cylindrical boilers through red-hot coals, and the vapor thus generated was received into a strong vessel—gas box—from whence it was taken into the cylinder of the engine, as steam is taken. In the same year a letter appeared in the Register of Arts, stating that a Mr. Billingham had constructed a furnace, in which coal was burned as usual, but at the back part of it there were a series of retorts set in an oven containing ignited coke, on which was thrown, by jets, a uniform quantity of tar. The smoke from the coal passed through the retorts when it was inflamed. The chamber which contained the retorts—red-hot—was surrounded with the water of the boiler. Fluted cast-iron bars were used in this gentleman's furnace—this has been claimed as a recent invention. He also cased his boiler with boards, allowing a space of five inches, which he packed with charcoal dust to prevent the radiation of the heat. It was asserted that these improvements would enable a steamship to go to any part of the world, as one-half of the fuel commonly used would be saved. Boards were placed inside of the boiler to float on the surface, to prevent priming.

The Aztec Children.

The following is the opinion of Horace Greely in respect to the Aztec children:—

The theory of Agassiz, which assigns diversity of origin or creation as the cause of differences of aspect and color among men, receives no confirmation, in our view, from a scrutiny of the lively, bright-eyed miniatures of Humanity from Central America now exhibiting in our city as "Aztecs." These are far more unlike the Caucasian race than the Hottentot is, notwithstanding their straight hair, light olive complexions, and pleasing features. If our belief in the Biblical account of the original creation of a first pair from whom all the diverse races of men have descended, had needed strengthening, the contemplation of these children would have confirmed it. They are wonderfully like and unlike the men and women who live and move around us, and with whom authentic history deals. Their intellectual faculties are rather limited than deficient; their most obvious defect being that of speech, though they are able to make themselves understood, as well as to comprehend what is said to them. Their spirits are usually buoyant; their apprehension is quick and natural; and the fact stated by the editor of the New York Observer that the girl remembered and resented, on his return after an absence of twenty-five days, his proposal to carry off her playmate and leave her alone, would of itself dispose of the suggestion that they are idiots. Yet with all their vivacity and archness, they fall very far short of possessing an average intellectual development; and we doubt whether the most acute theologian would be able to imbue them with a competent notion of the "Five Points" of Calvinism, the XXXIX Articles of Episcopacy, or any other creed which attempts to embody, in appreciable and credible propositions, the great fundamentals of Divine Truth as affecting Human Duty and Destiny. What ought to done for them in view of this fact is a question for Doctors of Divinity. And whether they have a sufficiently vivid percepion of Right and Wrong—or rather, of the weighty reasons for cleaving to the former and shunning the latter—to justify the "stringing up" of whichever of them might, in a sudden fit of passionate resentiment, take the life of the other, let experts in Medical and Phrenologic Psychology determine; we would rather be excused from the task.

Devotees of Science and of Letters—Students of Nature and Man, will find (and presume do find) in an hour's contemplation of these "Manikins," food for many hours of profitable reverie and contemplation. The trains of thought they suggest lead across oceans of Speculation to continents of vanished History. That these gnomes are not freaks of nature, as Tom Thumb is, we are confident; that their diminutive stature, mental and physical, is the result of some inveterate disregard of Nature's requirements, we cannot doubt.

The remote ancestors of these pocket editions of humanity, were doubtless native Americans of a peculiar stripe—they abhorred the idea of intermarriage with foreigners and guarded the purity of their race by cousinly intermarriages, until at length there were none but cousins or nearer relatives to marry—all others having disappeared through the dwindling of the population, both in size and in number. The consummation (very nearly) of this policy is before us.

But while few would consent to be Aztecs, care-free and playful as their life would seem to be, there is no reason why any should refuse to see them. They are specimens of a Race which has probably no other surviving members—at least very few others—and it is not probable that any others will ever be seen here. The wise and the simple, the learned and the ignorant, hoary Age and curious Childhood, may derive both interest and instruction from an hour spent in their society, and we learn with pleasure that the number of their visitors is steadily increasing.

Colt's Pistols.

Five hundred of Colt's Revolving Pistols have been sent out to the officers of the British army, now engaged in the Caffre war. Thus, it is, Jonathan is teaching his dady how to make shooting irons, after having taught him how to use them. It is quite natural that the son, if he is a good boy, should know a little more than his father.

Steamboat Building.

At Pittsburg, during the year 1851, fifty-two steamboats were built, being one per week for the whole year. The number of keel flats and barges were forty-eight. During the same period thirty-four steamboats were constructed at Louisville, Ky.

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